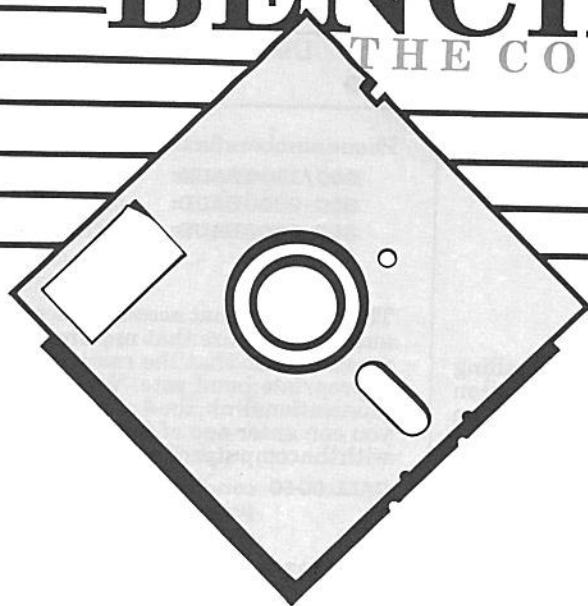


BENCHMARKS

THE COMPUTING CENTER



University of North Texas

VOLUME 10 NUMBER 7

SEPTEMBER 1989



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TO
SCHOOL!**

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SERVICES AVAILABLE TO USERS OF THE UNT COMPUTING FACILITIES

The UNT Computing Center is located in the Information Sciences Building (ISB), Room 119. Phone Numbers:

Computing Center: (817) 565-2324
Help Desk: (817) 565-4050
Micro Support: (817) 565-2316, 565-2319
Graphics Lab: (817) 565-3479
ISB I/O Area: (817) 565-3890
BA I/O Area: (817) 565-2350

All personnel listed below can be contacted either by calling the Computing Center or by sending them electronic mail on MUSIC/SP (ID-codes follow each name. All IDs are on BITNET node UNTMUSIC).

Benchmarks - Claudia Lynch (AS04)

Information & ID-Codes; Disk Space Problems - Marilyn Jett

Statistical/Research Support - George Morrow (AS01), Panu Sittiwong (AC09), Phanit Laosirirat (AC44)

Academic ADABAS/COM-LETE - Janis Burkham (AC55)

CRSP & COMPUSTAT Problems - Panu Sittiwong (AC09), Phanit Laosirirat (AC44)

Student Programming Problems - CSCI Dept., GAB Room 542A; BCIS Dept., BA Room 152

Problems with JCL, Passwords, or Operating Systems; or Communication/Terminal Problems - Help Desk

Data Entry; Test Scoring & Analysis - Betty Grise

Administrative Applications - Coy Hoggard

Printout Retrieval - ISB or BA I/O Operators

DIALING-UP UNT COMPUTERS OVER THE TELEPHONE

Phone numbers for the Local Area Network (LAN) are:

300/1200BAUD: (817) 565-3300, (817) 565-3499
300-9600BAUD: (817) 565-3461
300-9600BAUD: D/FW METRO 429-6006, 429-9314
 Area code 214 must dial 817 before the METRO number.

The numbers that accommodate multiple baud rates have an autobaud feature that requires you to hit the <RETURN> key repeatedly so that the receiving modem can determine the appropriate baud rate. When you have established a communications link, the # prompt will appear on your screen and you can enter one of following CALL commands to connect with the computer of your choice.

CALL 8040 connects with the NAS/8083 (supports line editing or PCWS). Operating environments available are: MUSIC/SP, VM/CMS.

CALL 3270 connects with the NAS/8083 through a 3270 protocol converter (supports full-screen editing). Operating environments are: MUSIC/SP, VM/CMS, ADABAS/COM-LETE, PHOENIX

CALL DEC connects with the VAXcluster (VMS, Eunice)

CALL 780 connects with the Research VAX (Unix)

CALL 3000 connects with the Libraries' HP-3000 (Bibliographic database).

CALL 6800 connects with the NBI (Unix)

Communications Settings

LAN addresses	Data Bits	Parity	Stop Bits
DEC, 3000	8	N	1
8040, 3270, 780, 6800	7	E	1

HOURS FOR UNIVERSITY OF NORTH TEXAS COMPUTER ACCESS AREAS : FALL 1989*

Location	Days	Times
Computing Center RJE	Sunday Monday Tuesday-Saturday	Noon-Midnight 7 a.m.-Midnight 7 a.m., Tues.-Midnight, Sat. (Open 24 hours/day)
ISB 110 Terminal Area	Sunday Monday-Thursday Friday Saturday	1 p.m.-Midnight 7:30 a.m.-Midnight 7:30 a.m.-9 p.m. 9 a.m.-9 p.m.
College of Business	Sunday Monday-Thursday Friday, Saturday	Noon-11:45 p.m. 8:15 a.m.-11:45 p.m. 8:15 a.m.-7:45 p.m.
GAB 550C	Sunday Monday-Thursday Friday Saturday	2 p.m.-Midnight 8 a.m.-Midnight 8 a.m.-5 p.m. 2 p.m.-Midnight
Graphics Lab	Sunday Monday-Thursday Friday Saturday	Noon-10 p.m. 8 a.m.-11 p.m. 8 a.m.-5 p.m. Noon-6 p.m.

*Hours may vary. Check MUSIC/VAX News and/or posted schedules for exceptions.

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GENERAL INFORMATION

Welcome Back!

By Dave Molta, Director of Academic Computing (BITNET: MOLTA@UNTVMI)

On behalf of the entire staff of the University of North Texas Computing Center, I'd like to welcome everyone back for the new 1989-90 academic year. Significant changes in computing have taken place over the past year, and many exciting new developments are on the horizon. This article will provide an overview of computing resources offered through Academic Computing Services, summarize some of the accomplishments we have made in the academic computing area during the past year and set the agenda for some improvements we have planned for the upcoming year.

Hardware and Operating Systems

The primary computing resources for academic computing at the University of North Texas consist of an IBM-compatible National Advance Systems 8083 dual processor mainframe computer and a Digital Equipment Corporation VAXcluster consisting of two VAX 11/785 minicomputers running under the VMS operating system. The NAS machine supports 3 operating systems for instruction and research: VM/CMS, OS/MVS, and MUSIC/SP as well as COM-LETE, a teleprocessing monitor. OS/MVS provides batch processing while MUSIC/SP is the primary interactive operating system. CMS is currently available on a limited basis while we study the feasibility of expanding its use on campus. COM-LETE is used by the College of Business for teaching ADABAS, a database management system.

Access to these and other computers is gained through a cable television-based local area network (LAN) on campus, or from off campus, through telephone lines connected to the LAN. Clusters of terminals are available to faculty and students in the General Academic Building, Music Building, and Wooten Hall. Twelve IBM AT-compatible microcomputers and six Macintosh SE microcomputers, all of which have access to host systems, are available for use in the Microcomputer Lab located in the Science and Technology Library (ISB 110). In addition, a computer graphics laboratory housing Texas Instruments and Macintosh computers, graphics terminals, an image scanner, and output devices, is located in the basement of the Information Sciences Building (ISB 6).

Software

Academic Computing Services directly supports several major statistical packages for use on the NAS and VAX computer systems including SAS, SPSS-X, BMDP, and MINITAB. Most major programming languages are also sup-

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ported on both of these host systems. Electronic mail facilities are supported on the NAS and VAX systems for intra-campus communications as well as for communications with several thousand other organizations through BITNET and the Internet. In addition, access to other Texas governmental, educational, and research institutions is provided through THENet, the Texas Higher Education Network. The Computing Center also serves as a repository for a substantial body of machine readable data including the Inter-University Consortium for Political and Social Research (ICPSR) data archives, Standard and Poor's COM-

PUSTAT, and the Center for Research in Security Prices' (CRSP) datasets.

Academic Computing Services also provides support for a variety of microcomputer-based software applications. Site licenses are maintained for SPSS-PC+, SAS-PC, and Micro-Crunch, all of which provide statistical analysis capabilities on IBM-compatible microcomputers. The ISB 110

Microcomputer Lab, which is open to all students and faculty, offers a variety of word processing software as well as the microcomputer statistical packages noted above. Software from the CD-ROM based PC-SIG public domain/shareware library, containing several hundred programs and utilities for IBM-compatible microcomputers, is also available in this lab, as is the Berkley library of public domain software for the Macintosh. To acquire any of this software, simply bring a blank diskette to the lab and ask the lab monitor for assistance. The Graphics Lab also supports a variety of graphics-oriented software for the

Macintosh, as well as programming languages.

Both of these labs provide free dot-matrix printing. Laser printing (HP Laserjet II and Apple Laserwriter II) is available at a cost of ten cents per page.

Consulting Services

Consulting services are provided by the Academic Computing staff to facilitate the use of campus computing facilities by students and faculty. Experienced consultants are available to assist people in the use of microcomputer and mainframe

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software as well as in the design of instructional and research projects. Consultants are also available to provide advice on the acquisition of computer hardware and software.

Because of limited staff resources, it is not possible for the Academic Computing staff to actually write programs or perform computer-based statistical analyses. Rather, we regularly provide a series of short courses intended to allow you to gain the expertise necessary to use the computer systems on your own (see schedule of classes later in this issue of *Benchmarks*). If you do experience problems, consultants are

available to meet with you on an individual basis to help you overcome any difficulties.

Review of Accomplishments: 1988-1989

- **New Protocol Converter:** A new 64-port IBM 7171 protocol converter was installed that permits ASCII terminals (and microcomputers with communications software) to emulate 3270-type terminals. This new channel-attached device provides improved performance and significantly

better reliability than the older Renex protocol converters. In addition, the 7171 is supported by the Kermit file-transfer protocol, meaning that users will no longer have to sign on in line-mode to transfer files.

- **IBM VM Software Consortium:** The Computing Center became a participant in IBM's VM Software Consortium, al-

lowing us to acquire a wide range of mainframe software written for the VM operating system. As noted earlier, we are currently examining the feasibility of making the VM/CMS operating system more widely accessible to the university computing community.

- **DEC Software Consortium:** The Computing Center is in the final stages of signing a contract with Digital Equipment Corporation to affiliate ourselves with DEC's educational software consortium. Doing so will allow us to receive a wide range of VAX/VMS and Ultrix software at no charge to the

university, thereby enhancing the software offerings on our DEC computer systems.

- **Novell Higher Education Joint Development Partnership:** In recognition for our activities in the computer networking arena, the University of North Texas has also been selected as a member of Novell Incorporated's Higher Education Joint Development Partnership, resulting in a software/hardware grant of approximately \$200,000. This select group of 22 American universities includes such prestigious institutions as Harvard, MIT, Georgia Tech, UCLA, Stanford, Michigan,

and several others. The Novell grant will allow us to significantly enhance our campus networking capabilities.

- **Increased use of departmental networks:** The Computing Center has been working closely with numerous departments and offices on campus in developing high-speed microcom-

puter networks using Novell's Advanced Netware Operating System. More than 30 of these networks are currently in operation on campus, 24 of which are linked over the broadband CATV system on an internetwork. Gateways have also been installed, providing departmental network users with access to academic and administrative host computers, including the Library card catalog. Other services also available on the Netware Internet include Purchasing and Office Supply databases, a high-capacity tape backup system, and a CD-ROM software library.

- **WordPerfect Site License:** Academic Computing Services has entered into an agreement with WordPerfect Corporation whereby we acquire software in bulk quantities at greatly reduced

cost and resell this software to departmental users. Under this arrangement, most WordPerfect products are available for approximately \$25 per copy, resulting in an overall savings to the university in excess of \$40,000 during the past year.

- **Expanded Microcomputer Labs:** One of the most exciting projects undertaken by Academic Computing Services during the past academic year was the conversion of the ISB 110 Terminal Lab into a microcomputer lab available to all students on campus. In the past, access to microcomputer labs on campus has been

One of the most exciting projects undertaken by Academic Computing Services during the past academic year was the conversion of the ISB 110 Terminal Lab into a microcomputer lab available to all students on campus.

restricted to students enrolled in specific departments' classes. However, with the increased recognition of the utility of computers across all disciplines, it became clear that the existing departmental facilities must be supplemented with general access facilities. The ISB 110 currently consists of 6 Macintosh SE computers and 12 IBM AT-compatible computers, all of which are tied both to a central file/print server and to the Sytek network (for access to host computer systems). We have learned many lessons during the past eight months and are planning to make several improvements to this facility during the upcoming year.

- **Faculty Seminars:** While Academic Computing Services has always attempted to provide quality computing services to

UNT faculty, we have only recently begun to target them as an audience in need of training support. The Faculty Seminar Series, begun this past year, has proven to be an effective vehicle for transferring computing-related information to faculty and graduate students on campus. Our first seminar focused on the use of Wide Area Networks such as THENet, BITNET, and the Internet, and included presentations and demonstrations. Our second seminar dealt with microcomputer statistical packages such as SAS-PC, SPSS-PC, and Micro Crunch. Both of these seminars were well attended and feedback

was quite favorable. We hope to expand our offerings during the upcoming year.

Projects Planned for 1989-1990

While we are proud of our computer facilities and services here at UNT, we are constantly striving to make improvements.

In line with these efforts, several projects are currently in the works to advance the quality of computing on campus. Of special interest to Academic Computing is the continued improvement of networking capabilities on campus.

- **Ethernet Connection to NAS 8083:** This project is a holdover from last year. In our efforts to support industry-standard computer and communications systems, we have acquired the hardware and software needed to provide high-speed access into the NAS 8083 mainframe computer system. Once the hardware and software are installed, we will be able to provide high speed access to the mainframe system, thus greatly facilitating the transfer of large amounts of information between the mainframe and micro-

and minicomputer systems on campus. Services will include remote login and file transfer to the VM operating system at very high speeds. This system will also dramatically improve communications capabilities between the NAS and VAX/VMS and UNIX systems on campus. Since the interface will utilize TCP/IP protocols, it will also be compatible with national networks such as the Internet and NSFnet.

- **Improvements in our VM/CMS Operating Environment:** As a result of our participation in IBM's VM Software Consortium, we will be able to significantly improve our support of the VM/CMS operating system at UNT. This system is the de-facto standard for IBM mainframe computing in academic environments and offers a number of enhancements when compared to the MUSIC operating system. MUSIC will continue to be supported as our primary interactive operating system while a task force studies the feasibility of adopting VM/CMS as our principal mainframe operating environment.
- **Upgrade of VAX Computer Systems:** As many of you who use the VAXCluster are aware, this system has become increasingly overloaded during the past year with average CPU utilization in excess of 95%. Plans are under way to replace the two aging VAX 11/785 with one newer and more powerful VAX computer system. The specific configuration has not yet been finalized, but we anticipate a significant improvement in response time once the new system is installed. In addition, we are working in cooperation with the Computer Science Department to replace the Research VAX (VAX 11/780 running UNIX) with a more powerful Unix-based processor. We hope to make this new system available to researchers interested in a

high-performance Unix processing environment.

- **Continued expansion of the Campus Ethernet:** We will continue to move towards expansion of the UNT Ethernet network as an alternative to the proprietary Sytek asynchronous network currently in widespread use on campus. While the Sytek network has served us well as a terminal-to-host communications system, Ethernet is a superior communications platform in a distributed computing environment due primarily to its much higher data transmission capability. We will continue to support the Sytek system while more aggressively deploying Ethernet where appropriate. We plan to use a combination of fiber-optic and broadband communications conduits for this system.
- **Expansion of the Novell Network Internet:** The software/hardware grant received from Novell will allow us to expand and improve our microcomputer networking capabilities on campus. We expect a number of departments and offices to install networks during the upcoming year, and we will focus additional efforts towards improving our support for these systems. In addition, we will continue to improve central services on the internet including gateways to other hosts and networks on campus, mail servers, backup servers, CD-ROM servers, and database servers.
- **Expansion of Public Access Microcomputer Labs:** This fall, a new microcomputer lab will be opened in the Willis library and made available for general use to all students on campus. The lab, which will be jointly managed by the Library and Academic Computing Services, will contain 20 IBM AT-compatible computers and 10 Macintosh SE computers. As is the case in the ISB 110 lab, these microcomputers will be interfaced to a central file/print

server, as well as to gateways allowing access into the Library computer system. Dot matrix printing will be available at no charge, while laser printing will be available at a cost of ten cents per page. We anticipate that this lab will be open by the end of September.

- **Improvement of Dial-In Capabilities:** Several of our older, more unreliable 1200 baud dial-up modems will be replaced with new 2400 baud units. We also are planning to deploy an experimental system that will allow users of Novell networks on campus to dial into the network and access programs and data stored on departmental file servers. In addition, we hope to be able to enhance our after-hours support for these systems to improve the overall reliability for students and faculty who wish to work at home.
- **Improvement of Wide-Area Network Services:** Early this fall, a new network router from Cisco Systems will be installed, thus allowing us to significantly enhance our connectivity into regional and national education and research networks. The current 9600 BPS connection to UT-Dallas will be upgraded to at least 56,000 BPS, resulting in dramatically improved remote access and file transfer between UNT and other computer systems across the country. This system will also facilitate a high-speed connection between UNT and the Texas College of Osteopathic Medicine in Ft. Worth.

If you are interested in acquiring additional information about central computing services at UNT, drop by the Computing Center in ISB 119. If you have any problems with the services we provide, please let us know and we will do everything we can to address your concerns. Once again, best wishes for a productive academic year. §



By Philip Baczewski, IBM Interactive Systems Coordinator (BITNET: AC12@UNTVMI)

Recently, a new version of the mail system was installed on VM/CMS. This new installation (version 89) brings additional functionality to CMS MAIL. The first point that CMS MAIL users will be glad to hear of is that the MAIL HELP files are once again operational. The old HELP files ceased to work when VM/SP was upgraded from release 3 to release 5. HELP files compatible with release 3 are incompatible with release 5. With this new version of MAIL, we have HELP files which are correctly formatted for release 5. Typing HELP MAIL from the READY prompt on CMS will display information on using the MAIL command. Typing HELP MAIL MENU will show a list of MAIL options and sub-commands on which further information is available. Similar HELP files exist for MAIL's companion program, MAILBOOK. MAILBOOK allows manipulation and maintenance of the "notebook" files in which MAIL messages can be filed.

Some notable features of MAIL are as follows:

- The MAIL read menu will be updated automatically when new mail arrives.

- Discarded messages are now indicated by a minus sign (-) next to the message subject. Previously, the "discard" message obliterated the message subject.
- The REPLY TEXT command now adds a line saying who sent the original, using the person's name rather than address, if possible.
- Upon exiting the read menu, MAIL now offers three choices: delete discarded messages (Yes), don't delete discarded messages (No), or return to the read menu (Menu).
- A bug was fixed so that messages with lines of =s in the message body no longer cause problems in building the read menu.
- CMS MAIL allows a large degree of customization. By creating a file called MAILUSER XEDIT, you can set many different parameters. For example, you can:
 - * specify where you want unread mail stored;
 - * receive acknowledgements to mail messages and set the type of acknowledgement you wish to receive (mail or message);
 - * specify default log file names;
 - * set the order in which you wish new mail to be sorted in the read menu;
 - * specify a signature file to be included at the bottom of all your mail messages, or an organization name to appear in the mail header.

For help in setting these parameters, type HELP MAIL PROFILE from the CMS READY prompt. Further information about using MAIL on CMS is found in a document entitled *Using Electronic Mail on CMS*, available free of charge at the Computing Center offices (ISB 119, 565-2324).§

New Version of Kermit Installed on MUSIC/SP and CMS

Philip Baczewski, IBM Interactive Systems Coordinator (BITNET: AC12@UNTVMI)

Attention Kermit users - a new version of Kermit -- Kermit-370 version 4.1 -- has been installed on MUSIC/SP and CMS. Kermit-370 is a program that implements the KERMIT file transfer protocol for IBM 370-series mainframes running the MUSIC/SP or CMS operating systems. It allows for the transfer of files between computers over asynchronous ASCII communications lines.

This version of Kermit offers several new features not found on previous versions including file transfers through the 7171 protocol converter, packet sizes up to 1910 on uploads, and a Kermit Server mode. One big advantage of this new version is that those who use the full-screen protocol converter (CALL 3270) to access MUSIC will no longer need to switch to line mode to do Kermit file transfers. This means that if you are using Procomm or another communications package (other than PCWS) to access MUSIC through CALL 3270, you no longer need to switch to line mode (CALL 8040) to accomplish Kermit file transfers. However, the use of line mode for Kermit file transfers will still be supported with the new version.

To use KERMIT-370, first execute your microcomputer program which supports the Kermit file transfer protocol. The following communications parameters should be used when connecting to MUSIC or CMS via CALL 3270 (using the 7171 protocol converter):

Stop Bits - 1
 Data Bits - 7
 Parity - EVEN
 Handshaking - NONE (0)
 Flow Control - XON/XOFF (17)

To use CALL 8040, you will need to set these parameters as follows:

Stop Bits - 1
 Data Bits - 7
 Parity - EVEN
 Handshaking - 17
 Flow Control - NONE (0)

Once these parameters have been properly set, sign on to MUSIC or CMS and type KERMIT. You may then issue KERMIT-370 commands such as SEND <filename> or RECEIVE.

You can receive further information on either system by typing HELP KERMIT. It may be helpful to read the HELP file before attempting to use the new version of KERMIT. If you have questions about Kermit please refer them to the HELP DESK (ext. 4050, ISB 110). §

The VAXcluster Joins USENET

By Billy Barron, VAX System Manager
 (BITNET: BILLY@UNTVAX)

USENET (User's Network) can be thought of as a worldwide bulletin board system. USENET is a logical network with over 2000 sites that use several physical networks including UUCP, X.25, and the Internet. USENET contains articles on hundreds of topics (known as newsgroups).

On the UNT campus, USENET has been available on the Research VAX for quite a while using the rn program. On the VAXcluster, the ANU

New Release of COBOL II Available on Academic MVS

By Janis Burkham, Academic Database Consultant (BITNET: AC55@UNTVM1)

COBOL II Release 3.0 is now available on the Academic MVS System. To access COBOL II, the user should execute one of the following UNT Standard Cataloged Procedures:

- COB2C - Compile Only (Steps: COB2)
- COB2CL - Compile and Link (Steps: COB2, LKED)
- COB2CLG - Compile, Link, and Go (Steps: COB2, LKED, GO)
- COB2CG - Compile and Go (Steps: COB2, GO)
- COB2LG - Link and Go (Steps: LKED, GO)
- COB2G - Go (Steps: GO)

The compiler options have been set to match those on VS COBOL 2.4 as closely as possible. Note: If you should happen to mix compiler modules (use some modules compiled under VS COBOL 2.4 and some compiled under COBOL II Release 3) you may encounter incompatibility problems. To prevent this type of problem, users of COBOL II should always include a steplib in the GO step for the COBOL II runtime library:

```
//STEPLIB DD DSN=SYS1.COB2LIB,DISP=SHR
```

This step is already included in the cataloged procedure.

Example of Using the COB2CLG Cataloged Procedure

```
// (JOB card)
// EXEC COB2CLG
//COB2.SYSIN DD *
    (COBOL II source statements here)
/*
//GO.SYSIN DD *
    (input data)
/*
```

VS COBOL Release 2.4 is still available as usual with the original standard cataloged procedures as follows:

- COBC - Compile only (Steps: COB)
- COBCL - Compile and Link (Steps: COB, LKED)
- COBCLG - Compile, Link, and Go (Steps: COB, LKED, GO)
- COBCG - Compile and Go (Steps: COB, GO)
- COBLG - Link and Go (Steps: LKED, GO)
- COBG - Go (Steps: GO)

News package was recently installed for the reading of BITNET and Internet mailing lists. One of the features of ANU News was the ability to connect the VAXcluster to USENET via the NNTP (Network News Transfer Protocol) protocol. The NNTP protocol is very disk space efficient because the VAXcluster does not have to keep a copy of all the USENET articles. Instead, whenever a user requests an article on the VAXcluster, ANU News automatically reads this information off the Research VAX. The negative side of this approach is that the Research VAX must be up for VAXcluster users to read USENET articles. Also, the rn package has been installed on the Computer Science NBI system using the NNTP protocol.

On the VAXcluster, all USENET articles are accessed through the ANU News, which is run by typing ANU at the \$ prompt. Due to the large number of newsgroups, it is recommended that new ANU News users, first issue a **DEREGISTER/ALL** command, then do a **DIR/ALL**, and finally type the **REGISTER** command while the arrow is pointing at each newsgroup that needs to be registered. From more information of using ANU News, please see the July/August 1989 issue of *Benchmarks*, or type **HELP** while in ANU News. Any questions about ANU News should be **POSTED** in the `anunews_local_questions_and_answers` newsgroup. §

Molta to Chair Seminar at Networld '89

Dave Molta, Director of Academic Computing, has been selected to serve as Chairman for the Education Seminar Track at Networld '89, to be held in Dallas from September 11 to 14 at the Infomart. Molta has also been selected

Step Off the Beaten Path ... Come to the Computing Center Open House



Every semester, the Computing Center hosts an open house to give people an opportunity to tour our facilities. The open house for the Fall Semester is scheduled for Wednesday and Thursday, September 20 & 21. Tours will begin at 9 a.m. and will be conducted at thirty minute intervals to groups of ten or less. The last tour of the day is scheduled for 7 p.m.

This is a great opportunity for faculty members to have their classes tour our facilities. If a group is larger than ten people, it can be broken into ten person subgroups for as many consecutive tours as needed.

If you are interested in participating in a tour, call 565-2324 for reservations. All tours begin at the Computing Center offices, ISB 119.§

as a member of the advisory panel for next year's show, which will be held at the Dallas Convention Center. Networkworld is the largest national conference on computer networking, with over 15,000 attendees expected for this year's show. Molta will also moderate a session entitled "Computer Networks in Higher Education: An Overview." Other session topics in the Education Track include the following:

- Issues in Delivering Computer Assisted Instruction
- Designing and Supporting University Instructional Labs
- University Network Support Strategies
- Campus-Wide Network Backbone Strategies
- Networking the Nation's Business Schools
- Multi-Vendor Interconnection Strategies in Higher Education
- Library/Media Center LANs
- Working Together for Success: Districts, Higher Education and State Agencies
- K-12 Instructional LANs
- K-12 Administrative LANs
- Networking K-12

With Networkworld being held in Dallas, members of the UNT computing community have an excellent opportunity to learn a great deal about new developments in computer networking. Since Novell currently dominates the networking marketplace with over 70% of all installed operating systems, Networkworld tends to emphasize Netware products and third-party solutions. However, more than 1,000 vendors will have booths on the show floor, including many of Novell's competitors (DEC, Apple, 3COM, Microsoft, to name a few). The show begins on September 11 with ten full-day tutorials on such topics as Designing Networks, Developing Network Applications, Wide Area Network Design, and Database Servers and LANs. The actual exhibit area opens on September 12 along with more than 100 90-minute seminars and continues through September 14. The cost of attending the show ranges from \$50 (exhibits only) to \$450 (exhibits, tutorials, and seminars).

For additional information on Networkworld '89, contact Microcomputer Support at 565-2316.8

Benchmarks Article Receives Award

We have recently been informed that the article, "LAN of the Free, Home of the Brave," by Kevin Mullet which appeared in the March 1989 issue of *Benchmarks* has been given an award in a technical writing competition. The article was awarded second place in the Association for Computer Machinery Special Interest Group University Computer Centers (ACM SIGUCCS) competition for articles over 1500 words in length. The award will be presented at the SIGUCCS '89 User Services Conference XVII, October 1-4, 1989 in Bethesda, Maryland.

MIPS: Meaningless Instructions Per Second?

By Billy Barron, VAX System Manager
(BITNET: BILLY@UNT.VAX)

The term MIPS, used commonly for rating CPU speeds, stands for Millions of Instructions Per Second. However, it has been also called "Meaningless Information on Performance for Salesman"¹, "Meaningless Instructions per Second"², and "Misleading Incorrect Processor Speeds". The rating is calculated by counting how many machine instructions are executed in a second and dividing by a million. However, while MIPS can be a useful rating if properly used, MIPS are frequently misused for the following reasons:

- The instruction set on almost every computer is different. Some machines with powerful instructions, such as a VAX, have instructions that do advanced functions like polynomial evaluation. Other machines may take dozens of instructions to do the same amount of work. Mainframes and minicomputers have much larger and more powerful instruction sets than workstations and microcomputers. In fact, the term RISC, used to describe many workstations, means Reduced Instruction Set Computer.
- Supercomputers, mainframes, and minicomputers have a greater amount of I/O processing power. Typically, these machines have a powerful processor dedicated to I/O whereas workstations and micros do not. Using the VAX as an example again, there is a whole PDP 11/24 processor that does nothing besides disk and tape data transfer. The result of the powerful I/O processor is quicker I/O and less of a drain on the CPU to process I/O.
- Another important factor in the actual speed of computer is the amount and speed of cache

memory available. The cache allows buffering which increases throughput.

- On disk intensive work, like many database applications, the disk speed is more important than the CPU speed for actual system throughput. On average, the larger computer systems have faster disk drives.
- For multiuser systems, it is a general rule that the more memory you have the faster your system is. The reason for this is that most multiuser computers use virtual memory. In the virtual memory model, the computer pretends that it has more memory than it really has by using some disk space as memory. The problem with this is that the disk is at least 100 times slower than main memory. Therefore, by increasing main memory and decreasing the disk memory, the computer gets greater throughput.

MFLOPS (Millions of Floating-point Operations Per Second) is another common rating used to judge computer speeds. For real number calculations, such as trigonometry functions, MFLOPS is a useful rating. However, the majority of non-scientific applications use integer or string calculations. For these applications, the MFLOPS rating is useless.

Digital Equipment Corporation (DEC) has its own set of terminology for their equipment. The two basic units are the VUP (VAX Unit of Processing) and MVUP (MicroVAX Unit of Processing). A VUP is the horsepower of a VAX 11/780, and the MVUP is the processing power of MicroVAX II. One common misconception is that 1 VUP is equal to 1 MIP.

Computer benchmarks are another method to rate computing power. Some of the more common benchmarks are Whetstones, Dhrystones, Kornerstones, and Sieve. Each benchmark simulates a certain job and instruction mix on the com-

puter system. If the job and instruction mix is your mix, the benchmark can be useful. However, if your mix is different (which it most likely is), then the benchmark is not very useful. Another problem with benchmarks are they perform differently with different compilers (due to compiler optimization). In one test on a VAX 780 running Unix and VMS with a whole series of different compilers, the benchmark recorded anywhere from 4625 milliseconds to 11530 milliseconds³. Then comes in the question of which benchmark result should be used. Probably most vendors use the fastest result. In fact, some vendors, such as NeXT, now refuse to give benchmarks because they feel that benchmarks have nothing to do with actual performance. Finally, benchmarks may be summarized in the original source to the Dhrystones benchmark: "The program does not compute anything meaningful"⁴.

MIPS, MFLOPS, VUPs, and benchmarks can be useful when used properly. The BEST way to determine how powerful a computer would be for your application is to run your application(s) on it and see which machine completes it the fastest (many companies will allow you to do this).

References

- Fox, Ron², "Why MIPS are meaningless?", *Byte*, Volume 13 Number 6, June 1988, p 225-234.
- Levy, Henry and Douglas Clark³, "On the Use of Benchmarks for Measuring System Performance", *Computer Architecture News*, Volume 10 Number 6, Dec. 1982, p 5-8.
- Nicholas, Bill¹, "That 'B' Word", *Byte*, Volume 13 Number 6, June 1988, p 207-212.
- Weicker, Reinhold⁴, "Dhrystone: A Synthetic Systems Programming Benchmark", *Communication of the ACM*, Volume 27 Number 10, October 1984, p 1013-1030. §

Seminars Offered to Faculty, Staff

By Claudia Lynch, Benchmarks Editor
(BITNET: AS04@UNTVM1)

Each semester, classes are offered by Academic Computing Services' Microcomputer Support Staff for the University Personnel Office's Training and Development Program "Hands-On Computer Seminars." These seminars are available to all faculty and staff members. According to information provided by the Personnel Office: "Your participation in Personnel-sponsored programs is considered a part of your working hours, and your supervisor's approval is required for you to register for training if you are a staff member. A record of the programs you attend is a part of your permanent personnel file."

The following classes are being offered this semester.

- Introduction to Microcomputers and DOS (Disk Operating System)
- Introduction to WordPerfect Version 5.0
- Advanced WordPerfect 5.0 - Merge Capabilities
- Advanced WordPerfect 5.0 - Manuscript Techniques
- Advanced WordPerfect 5.0 - Office Related (Column Techniques)
- Lotus 1-2-3 Spreadsheet
- Lotus 1-2-3 Database/Graphics
- Introduction to Hard Disk Management
- Introduction to DBASE III-Plus
- Sims Training

To sign up for a course, obtain a course registration form from the personnel office. §

1989 Fall Short Course Schedule

Academic Computing Services

University of North Texas

Computing Center

The Computing Center is offering the following short courses for the 1989 Fall Semester. Please pre-register to attend (a registration form can be found at the end of this issue). A maximum of 10 people will be admitted to each of the courses held in ISB 110. A maximum of 8 people will be admitted to each of the courses held in ISB 123.

MAINFRAME COURSES

1. **Introduction to MUSIC/SP** - MUSIC/SP is the primary interactive operating system employed by most academic users to access the NAS/8083 IBM-compatible mainframe computer at UNT. MUSIC users have access to a variety of programming languages, a sophisticated word processing system, and several statistical analysis packages. MUSIC also gives you the capability to submit batch jobs to the MVS operating system. Topics covered include gaining access

over the Local Area Network, logging on and off, changing your password, and creating, editing, and storing files using the full-screen editor. Additional topics that may be covered, depending on available time, are: accessing on-line help facilities, using electronic mail, routing output to high-speed printers, and writing files to secondary storage such as disk and tape.

Introductory sessions to MUSIC/SP will be held in Room 110 of the Science Library (ISB) on a weekly basis beginning the first part of the Fall semester. **NO PRE-REGISTRATION IS REQUIRED FOR THESE COURSES.** A preliminary schedule is printed below. Consult the HELP DESK (565-4050) for class dates and times. All courses will be taught by Help Desk staff.

- Friday, September 15: 9-11 a.m.

- Tuesday, September 19: 3-5 a.m.
- Monday, September 25: 9-11 a.m.
- Thursday, November 9: 3-5 p.m.
- Wednesday, November 15: 1-3 p.m.

2. **Introduction to IBM Job Control Language (JCL)** - This course provides an overview of IBM JCL for users who wish to further their knowledge in this area. It is useful to individuals who plan to run batch jobs (e.g. SAS, SPSS-X, BMDP) on the IBM-compatible mainframe computer.

Two separate two-hour sessions to be held in the Academic Computing Conference Room (ISB 123):

- Monday, September 18: 3-5 p.m.
Instructor: George Morrow
- Tuesday, November 14: 9-11 a.m.
Instructor: Janis Burkham

- 3. Introduction to SAS** - SAS is one of the most widely implemented data analysis systems within business and education. SAS is particularly well suited for dataset manipulation and includes an extensive procedure library providing a wide range of analytical tools. This course is recommended for individuals who plan to incorporate statistical analyses into their research. Topics covered include the reading of data into SAS, simple data transformations recoding variables, labeling output, and performing simple univariate and bivariate analyses. Prior knowledge of MUSIC/SP is required.

Two separate two-hour sessions to be held in Room 110 of the Science Library (ISB):

- Tuesday, September 19: 3-5 p.m.
Instructor: Phanit Laosirirat
- Wednesday, November 15: 9-11 a.m.
Instructor: Panu Sittiwong

- 4. Introduction to SPSS-X** - SPSS-X is the latest version of this popular data analysis system originally developed for social scientific research. While SAS is slightly more powerful for the analysis of complex datasets, many users find SPSS-X to be easier to learn. SPSS-X also includes more flexible facilities for collapsing and labeling variables. This course is recommended for individuals who plan to incorporate statistical analyses into their research. Topics covered include the reading of data into SPSS-X, simple data transformations, recoding variables, labeling output, and performing simple univariate and bivariate analyses. Prior knowledge of MUSIC/SP is required.

Two separate two-hour sessions to be held in

Room 110 of the Science Library (ISB):

- Wednesday, September 20: 9-11 a.m.
Instructor: Panu Sittiwong
- Tuesday, November 14: 3-5 p.m.
Instructor: Phanit Laosirirat

- 5. Introduction to CMS** - CMS is an interactive operating system employed by some academic users to access the NAS/8083 IBM-compatible mainframe computer at UNT. CMS users have access to a variety of programming languages, a sophisticated text processing system, and several statistical analysis packages. CMS also gives you the capability to submit batch jobs to the MVS operating system. Topics covered include gaining access over the Local Area Network, logging on and off, changing your password, and creating, editing, and storing files using the full-screen editor. Additional topics that may be covered, depending on available time, are: accessing on-line help facilities, using electronic mail, and routing output to high-speed printers.

Two separate two-hour sessions to be held in the Academic Computing Conference Room (ISB 123):

- Friday, September 22: 9-11 a.m.
Instructor: Philip Baczewski
- Thursday, November 16: 3-5 p.m.
Instructor: Philip Baczewski

- 6. Introduction to VAX/VMS** - VMS is the interactive operating system used on the Digital Equipment Corporation (DEC) VAXcluster. The VAXcluster supports a variety of applications. The topics covered in this course include gaining access to the

VAXcluster through the Local Area Network, logging in and out, changing your password, creating files and directories, creating login command files, using the EDT editor, and defining logicals and symbols, and electronic mail.

Introductory sessions to VAX/VMS will be held in Room 110 of the Science Library (ISB) on a weekly basis beginning the first part of the Fall semester. **NO PRE-REGISTRATION IS REQUIRED FOR THESE COURSES.** Consult the HELP DESK (565-4050) for class dates and times. All courses will be taught by Help Desk staff.

- 7. Introduction to BITNET** - BITNET is a network linking more than 600 computers at over 300 institutions and research centers. This course covers the basic concepts of BITNET, file transfers across BITNET sites, and other services that are available on this computer network. Faculty and graduate students needing to exchange information with other universities and research institutions in the U.S., Canada, Europe, or Japan will benefit greatly from attending this course. Prior knowledge of at least one of the following interactive operating systems is required: CMS, MUSIC, VAX/VMS.

Two separate two-hour sessions to be held in the Academic Computing Conference Room (ISB 123):

- Tuesday, September 26: 3-5 p.m.
Instructor: Philip Baczewski
- Monday, November 20: 3-5 p.m.
Instructor: Philip Baczewski

- 8. Introduction to ARPA Internet and THENET** - the ARPA In-

ternet is a collection of related computer networks that link thousands of computers throughout the world.

THENET is a network that connects 35 universities, research institutions, and state agencies in the state of Texas. This course covers the basic concepts, file transfer, remote login, and other services available on the networks. Faculty and students needing to exchange information with other universities, government agencies, companies and research institutions, or between the various machines on the University of North Texas campus would benefit from this course. Prior knowledge of at least one of the following interactive operating systems is required: VAX/VMS, Unix, MS-DOS.

A two-hour session to be held in the Academic Computing Conference Room (ISB 123):

- Wednesday, September 27: 3-5 p.m.
Instructor: Billy Barron

MICROCOMPUTER COURSES

1. **Introduction to Micros (PCs and MACS)** - Introduction to the use of IBM PCs and MAC SEs. Basic concepts and use of each type of microcomputer will be covered.

Two separate two-hour sessions to be held in Room 110 of the Science Library (ISB):

- Thursday, September 14: 1-3 p.m.
Instructor: Panu Sittiwong
- Wednesday, November 8: 9-11 a.m.
Instructor: Panu Sittiwong

2. **Introduction to MS/DOS** - MS/DOS is the most popular operating system available for IBM PC and compatible microcomputers. The topics covered in this course include

formatting floppy disks, running applications, printing, file manipulation, and directory maintenance.

Two separate two-hour sessions to be held in Room 110 of the Science Library (ISB):

- Thursday, September 14: 3-5 p.m.
Instructor: Billy Barron
- Wednesday, November 8: 1-3 p.m.
Instructor: Billy Barron

3. **Using Microcomputers in a Networked Environment** - Special emphasis is placed on the unique features of networked microcomputers. Topics such as accessing file servers and printing to remote printers available to UNT students will be covered.

Two separate two-hour sessions to be held in Room 110 of the Science Library (ISB):

- Monday, September 18: 1-3 p.m.
Instructor: Kyle Capps
- Wednesday, November 15: 3-5 p.m.
Instructor: Kyle Capps

4. **Introduction to Wordprocessing on the MAC** - Basic

wordprocessing on the Macintosh, using Microsoft Word.

Two separate two-hour sessions to be held in Room 110 of the Science Library (ISB):

- Friday, September 22: 1-3 p.m.
Instructor: Kevin Mullet
- Friday, November 17: 3-5 p.m.
Instructor: Kevin Mullet

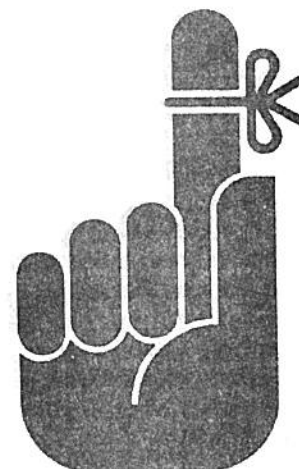
4. **Introduction to Wordprocessing on the PC** - Basic wordprocessing in an IBM PC environment, using Word-Perfect.

Two separate two-hour sessions to be held in Room 110 of the Science Library (ISB):

- Friday, September 22: 3-5 p.m.
Instructor: Kevin Mullet
- Friday, November 17: 1-3 p.m.
Instructor: Kevin Mullet

5. **Introduction to PCWS and Introduction to Procomm** are two short courses that deal with Personal Computer to mainframe communications. **Introduction to PCWS** presents an overview of using PC Work Station, a communications package which is specifically written to allow

REMEMBER: faculty members can request "customized" short courses for their classes. These will be taught by a member of Academic Computing Services. To request such a course, contact the Computing Center Offices, 565-2324 (ISB 119).



terminal access and file transfer capabilities between an IBM PC or compatible and the MUSIC/AP operating system. Topics covered will include setting up PCWS communications parameters, connecting to MUSIC over the UNT local area network, using PCWS for file transfer between MUSIC and the PC. **Introduction to Procomm** presents an overview of the Procomm communications package for Personal Computers or compatibles. Procomm provides several different terminal emulation modes, and supports several file transfer protocols including KERMIT and XMODEM. Topics covered include setting communications and file transfer parameters, setting up and using Procomm's dialing directory, and connecting to UNT mainframes through the local area network. Another communications package, **Kermit**, will also be discussed at the end of the PCWS session.

Two separate one-hour sessions to be held in the Academic Computing Conference Room (ISB 123):

- **Introduction to Procomm:**
Thursday, September 21:
2-3 p.m.
Instructor: Kevin Mullet
Tuesday, November 14
2-3 p.m.
Instructor: Kevin Mullet
- **Introduction to PCWS:**
Thursday, September 21:
3-4 p.m.
Instructor: Kevin Mullet
Tuesday, November 14:
3-4 p.m.
Instructor: Kevin Mullet

Signs of the Times?

Seen on the UNT BBS:

Hi, my name's Johnny. I'm a cyberholic.

UNT Computing Center Policy and Procedure Highlights

This is a modified version of an article that appears yearly in Benchmarks.

Procedure for Obtaining User-ID Codes for Classroom Instruction

When applying for ID-codes for classroom use, we ask that faculty fill out two forms for each class in which they need computer ID-codes. The first form, which is white, is titled "Classroom ID Usage Projection" and fulfills two purposes. First, information on course enrollment, number of ID-codes, systems, and software usage aids the Computing Center in planning for future computer and software purchases. Second, the form collects information on other special facilities provided by Academic Computing, such as terminal rooms, the Graphics Lab, and short courses, which the class may require.

The second form, which is blue, is called the "New User-ID Request Form," and is used to assign ID-codes for mainframe computers that are owned and administered by the Computing Center. The information on this form is entered into a computer database by our clerical staff. This database forms the input for a program which automatically assigns ID-codes and passwords on all of our computer systems. It is critical, therefore, that this form be filled out accurately and completely.

In addition to the faculty member's name and Social Security Number, there are several other important items on the blue Request Form. Instructors should indicate that they are requesting Classroom user IDs, and specify the course information with department, course and section. Failure to provide this information will slow down the processing procedures.

The form also contains a space to indicate the number of students in the class. If this area is left blank, our program will assign user ID-codes to all students registered for that class. Each ID-code will be matched with the name of a student in the class as contained in the University student records database. At the beginning of each new semester, therefore, it would be wise to wait until most add/drops have been completed before requesting computer user ID-codes for classes.

The ID-codes will be composed of two letters and two digits. The two digits will start with 00, then 01, 02, etc. until the number is equal to the number of students in the class. The ID-code numbered 00 is in the instructor's name (for the instructor's use only), and each of the other codes is assigned to a student by name. Slips containing the ID-codes, passwords and names should be picked up by the instructor at the Computing Center Reception Area, located in the Information Science Building, Room 119.

If additional students are added to the class, the instructor need only call Theresa or Marilyn in the Computing Center, Ext. 2324, letting them know the last number in the original range assigned. The required number will then be

added, and may be picked up shortly thereafter in the Computing Center. Likewise, instructors may cancel the ID-codes of students who drop the class by providing the student names and ID-codes in a written memo.

Under some circumstances, instructors may prefer that ID-codes not be assigned to each student by name. This may occur, for example, when students will be working only as teams, or when codes are needed before the class rolls are determined. Only in cases like these should instructors indicate the number of ID-codes required for the class. All these codes will be assigned in the instructor's name, and will range from 00 to the number requested. Once again, the 00 ID-code should only be used by the instructor.

Instructors should indicate on the Request Form the computers and operating systems required for the class. The MUSIC/SP system is required to access almost all software on the IBM-compatible mainframe NAS/8083 computer, including those programs that run only under the OS batch operating system.

Normally, then, classes that use the IBM-compatible system will require both MUSIC and OS batch ID-codes. Classes which use the VAX computers will also be assigned OS batch ID-codes, so that students may use the central printers in the ISB. *No class ID-codes will be assigned on the administrative portion of the NAS/8083 computer under any circumstances.* Classes which require access to the CMS operating system, or the COM-LETE teleprocessing monitor on the academic NAS/8083, must first have the approval of the Academic Computing Manager.

Faculty should also fill in the departmental account number and department name. This information allows us to collect data on computer usage by department and college which is useful in planning for future computer and software purchases.

The Request Form is not complete until it has been signed by both the faculty member and the department head. These signatures certify that

the computing services requested are in support of University activities, and will not be used for commercial purposes or personal financial gain.

Obtaining an Individual ID-Code

Individual faculty and students may apply for an ID-code, which will be theirs to use for the entire fiscal year (September 1 - August 31). In order to obtain this type of ID-code, a "Computing Center New USER-ID Request Form" (blue) must be completed and signed by the Account Authority for the particular department the individual is from. Students applying for an individual ID-code must also have the signature of a faculty sponsor.

The Responsibilities of Computer Use

Like most of life's other privileges, the privilege of being a computer user at NT brings with it some responsibilities. These responsibilities involve two common things, courtesy and sense. Every computer user must comply with the following statement, which is signed by individual ID-code holders and Instructors who apply for classroom ID-codes. It is the Instructor's responsibility to inform their students about this when they pass out the ID-codes (this form has not yet been modified to reflect the University name change).

I hereby certify that to the best of my knowledge and intent, the computing services obtained through the use of this request form will be for the purpose indicated above and:

1. Will be limited to justifiable computing support of NTSU/TCOM activities;
2. Will not be used for commercial purposes or financial gain.

I understand the unauthorized use of files or userids other than my own may be a violation of Texas State criminal law (see BENCHMARKS, Feb.

1986, pp. 2,3 for a more detailed description). Any unauthorized use of another user's program or data files will result in the loss of computing privileges and possible disciplinary or criminal action.

This means, among other things, that people who have classroom ID-codes, cannot use them for non-classroom work. There have been instances in the past of student violations with regard to the use of classroom ID-codes. These violations have included such things as using the computer to perform tasks in connection with an off-campus job, and using the mainframe laser printer to produce resumes. **BE FOREWARNED!** For a student, loss of computing privileges, *which could happen* when you do such things, could make it impossible to complete classroom assignments, or even an entire degree program. Furthermore, abuse of computing resources could result in the restriction of computing services for the *entire academic community*.

See related topic that follows . . .

Computer Crime and You: Know the Law

The Texas State Legislature amended Title 7 of the Penal Code, effective September 1, 1985 to include computer crimes. After providing definitions for such terms as 'communications common carrier,' 'computer,' 'computer program,' 'computer security system,' 'data,' and 'electric utility,' Senate Bill 72 goes on to state:

"Section 33.02. BREACH OF COMPUTER SECURITY.

(a) A person commits an offense if the person:

"(1) uses a computer without the effective consent of the owner of the computer or a person authorized to incense access to the computer and the actor knows that there exists a computer security system intended to prevent him from making that use of the computer; or

"(2) gains access to data stored maintained by a computer without the effective consent of the owner or licen-

see of the data and the actor knows that there exists a computer security system intended to prevent him from gaining access to that data "(b) A person commits an offense if the person intentionally or knowingly gives a password, identifying code, personal identification number, or other confidential information about a computer security system to another person without the effective consent of the person employing the computer security system to restrict the use of a computer or to restrict access to data stored or maintained by a computer.

"(c) An offense under this section is a Class A misdemeanor.

"Section 33.03. HARMFUL ACCESS.

(a) A person commits an offense if the person intentionally or knowingly:

"(1) causes a computer to malfunction or interrupts the operation of a computer without the effective consent of the owner of the computer or a person authorized to license access to the computer; or

"(2) alters, damages, or destroys data or a computer program stored, maintained, or produced by a computer, without the effective consent of the owner or licensee of the data or computer program.

"(b) An offense under this section is:

"(1) a Class B misdemeanor if the conduct did not cause any loss or damage or if the value of the loss or damage caused by the conduct is less than \$200;

"(2) a Class A misdemeanor if the value of the loss or damage caused by the conduct is \$200 or more but less than \$2,500; or

"(3) a felony of the third degree if the value of the loss or damage caused by the conduct is \$2,500 or more.

"Section 33.04. DEFENSES. It is an affirmative defense to prosecution under Sections 33.02 and 33.03 of this code that the actor was an officer, employee, or agent of a communications common carrier or electric utility and committed the proscribed act or acts in the course of employment while engaged in an activity that is a necessary incident to the rendition of service or to the protection of the rights or property of the communications common carrier or electric utility.

If you are interested in seeing the text of the entire document, contact

Claudia Lynch, *Benchmarks* Editor at 565-2324, or send electronic mail on either the to the ID-Code AS04.

After-hours Output Retrieval For Students In Wheelchairs

The following procedure is to assist students in wheelchairs to obtain output printed on the Laser or Remote 3 printers after regular office hours.

During regular office hours (8 a.m. - 5 p.m., Monday through Friday), students in wheelchairs may enter through the Computing Center front office (Rm 119 ISB) and go through the hallway around to the Output boxes to retrieve their output. This office is closed after 5 p.m. on weekdays and at all times on weekends. At these times, please follow these steps.

1. ON MUSIC using REMOTE 3: Jobs routed to this Remote have been printed when OSJR responds "JOB NOT FOUND". Proceed to '3' below.

2. ON MUSIC using LASER: Wait about 45 minutes after OSJR responds "JOB NOT FOUND", then call 3890 to see if your job has printed. **ON VAX using LASER:** Wait about 50 minutes after submitting your job with the LASER command, then call the Output Operator (at 3890) to see if your job has printed.

3. Output to the HP-LaserJet II or Apple Laserwriter II. Wait at least 15 minutes after you have sent your output to one of these printers, then call the Output Operator at 3890 to see if your job has printed.

4. When your job has printed, tell the Output Operator at 3890) A. Your name, B. How many jobs you'll be picking up, C. Filing type specified on the output, D. That you're on your way over to pick up the output.

5. Come over to the ISB main entrance. Buzz the key-operated buzzer by the far right door, and

come into the hallway by the door to ISB room 119.

The Output Operator on duty will have retrieved your printouts after your phone call. (S)he will listen for the buzzer as a signal to bring the printouts to you at the door of rm. 119, as soon as (s)he is able to do so.

To obtain a key to the buzzer: See Handicapped Student Services, in the Dean of Students Office.

Mainframe Job Processing Policy Reminder

Every semester brings with it new faculty and students and returning faculty and students who have had plenty of things to think about between semesters besides what the Computing Center job processing policies are. It is for this reason that it is probably a good idea to review some of the "biggies," as far as rules go ...

1) One of the most important rules is the **4 COPY RULE**. That is, the maximum number of copies of a job to be printed on any Computing Center printer is 4. Exceptions to this policy must be approved by the Associate Vice President for Computing or his authorized representative. Violations will be reported to the appropriate Vice President. This rule should be taken very seriously.

2) No more than 5 jobs can be submitted to the execution queue on the NAS/8083 by the same person at one time. Additional jobs will be canceled unless special permission has been obtained and Computer Operations has been notified. Permission may be gained by contacting Academic Computing Services (ISB 119, 8-5 M-F).

3) Jobs can have different classes, and if you misclassify your job it may be canceled. The table below shows the job class schedule.

CLASS:	TIME/LINES RESTRICTIONS:	# OF TAPES:
A	$3 * \text{TIME} + (\text{LINES}/1000) \leq 45$	NONE
B	$3 * \text{TIME} + (\text{LINES}/1000) \leq 45$	ONE
C	$3 * \text{TIME} + (\text{LINES}/1000) \leq 45$	THREE
D	$3 * \text{TIME} + (\text{LINES}/1000) \leq 45$	TWO
J,K,N	$3 * \text{TIME} + (\text{LINES}/1000) > 45$	< THREE
M	$3 * \text{TIME} + (\text{LINES}/1000) > 45$	THREE

BATCH CLASSES (TIME + LINES ≤ 4) (NO TAPES):

CLASS:	COMPILER:
1	PLC
2	WATFIV
3	SPITBOL
4	WATBOL
5	WATFIV-S

Class L is reserved for JOBS requiring over two megabytes (2048K). Permission to run such jobs must be obtained from Academic Computing Services (ISB 119, 8-5 M-F).

NOTE: Class J,K,L,M, or N jobs must have a special handling notice submitted to the operators via 'SURF' stating time, lines, and number of devices (tapes) required before the jobs will be processed. Enter HELP SURF while in *GO mode on MUSIC/SP for more information.

More information about JOB processing policies can be obtained by entering HELP OPER from *GO mode on MUSIC/SP.

VAXcluster Processing Policies

- Any job using over 10 minutes of CPU time must be run in batch. Interactive jobs with this amount of CPU time may be canceled unless prior approval has been given by Academic Computing Services.
- No more than one batch job per VAX is allowed by the same person at one time. Additional jobs will be canceled or held unless special permission has been obtained from Academic Computing Services.
- All user files should be in the user's directory tree. Files written elsewhere on the system will be

deleted unless approval has been granted by Academic Computing Services.

File Management Policy for CMS Spool Files

All CMS spool files will be purged after seven days. Spool files are CMS virtual reader, punch, and printer files which have not been received to your minidisk, or transferred elsewhere. For example, CMS mail is received in the form of reader files. This action is necessary to ensure that enough spool space will continue to be available.

File Management Policy For OS/MVS Disks

The following procedures are in effect for managing files on the academic disk packs.

ACAD00, ACAD01, and ACAD02

The volume ACAD01 is to be used solely for instruction by faculty and students in the College of Business. Faculty and graduate students who have data and programs used for research should store their files on ACAD00. ACAD02 is available for all other general use.

All files on the volumes ACAD00, ACAD01 and ACAD02 which have not been accessed for the previous six months are deleted at the end of every long semester and before each Fall semester. Users who have data and programs on these volumes that are infrequently accessed should copy these files to tape.

Moving Datasets

You may use the utility program MOVEDATA to move a sequential or partitioned dataset from OS disk to tape, or from one OS disk to another. To access this program, type MENU in the *GO mode on MUSIC/SP. Users with VSAM or ISAM data sets are responsible for writing the appropriate programs to move their files.

OS Dataset Naming Convention

The naming convention for OS disk and tape datasets on the Academic NAS/8083 CPU is: USER.myid.filename

OS Disk Policy Revised

The present policy of archiving any data file on the OS academic disks that has not been referenced in the past year is being revised. Due to the shortage of disk space, the last reference period is being reduced to six months. It is hoped that this will make more disk space available to academic users. This revision will be in effect for the archiving that will take place at the end of the fall semester.

where: **USER.** - must appear
myid - is your User-ID and must appear
 - must appear
filename - is one or more optional fields (each of which may not exceed 8 characters) separated by periods.

If you are allocating a VSAM dataset, you should use the high-level qualifier of **USRV**. instead of **USER**. If a job attempts to create or access a dataset that does not have a proper high-level qualifier, the job will fail with a JCL error, and the following message will appear in the messages area of your output:

```
IEF720I jobname ddname - USER NOT
AUTHORIZED TO DEFINE THIS DATA
SET
```

Tape datasets should also follow the above naming convention. Catalogued datasets will be deleted if they do not follow the proper convention.

Processing Tapes on the NAS/8083

Tape processing on the NAS/8083 is accomplished through a tape management system (TMS), which provides users with protection against inadvertent loss of tape data and manages the many tapes in the Computing Center's tape library. In order for the TMS to be effective, it must control all the tapes that are being processed. To accomplish this, people who own tapes that they want to access must have them copied onto a tape controlled by the TMS. The only exception to this rule is if you want to access a foreign tape (a tape that doesn't belong to the TMS) "just one time." This might be the case if you want to copy files from a tape onto disk. In all other cases, you cannot access data contained on a tape unless it resides on a TMS volume. The OPER help file on MUSIC has a good overview of the

Tape Management System here at UNT. To read it, enter **HELP OPER** from MUSIC *GO mode and follow the instructions.

Below are some procedures to follow to process tapes on the NAS/8083:

CONDITION	ACTION
Copy Tape onto TMS	Bring tape and any documentation about it to the Computing Center Reception Area (ISB 119). Fill out the BLUE form for copying Foreign tapes onto the TMS.
Copy TMS volume to personal tape	If necessary, find out what the requirements are for tapes at the location you are planning to process your tape. Bring your personal tape to the Computing Center Reception Area (ISB 119). Blank tapes may be purchased here, also. Fill out the GREEN form for copying TMS volumes onto Foreign Tapes.
Copy files from personal tape to disk	Bring your tape to the Computing Center high security area (GAB 5th floor - take the northeast staircase). Run your job (remembering to send a SURF message telling the operator to process your tape - enter SURF from *GO mode on MUSIC/SP and follow the instructions). When you are through, and are sure your job worked, return to the high security area to pick up your tape.

NOTE: If you have a non-labeled tape and don't want to write dataset names, the Tape Librarian will assume it is O.K. with you to name your

files **USER.yourid.FILE001** to **USER.yourid.FILE00N**.

The tape management system keeps track of what is going on with its tapes through the tape management catalog (TMC). The TMC is updated each time a tape is mounted and dismounted, and contains the following information:

- Volume Serial	- Record Format
- Blocksize	- Expiration Date
- Tape Density	- Dataset Name
- Logical Record Length	- Jobname/Stepname
	- Creating File

The TMS allows users to specify retention periods and expiration dates for their tapes (expiration dates are calculated, if a retention period is specified). The default retention period is 180 days. Each file on a tape has an expiration date associated with it. If the tape is a copy of an outside (foreign) tape, all the datasets (files) on the tape will have the same expiration date. If the tape consists of files that have been added over time, each file will have a different expiration date. A TAPE WILL NOT EXPIRE, UNTIL ALL THE FILES ON IT HAVE EXPIRED!

While this may be a comforting thought, do not be lulled into blissful abandon. Unless you are continually adding files to your tape, it will expire eventually. An expired tape is AUTOMATICALLY returned to scratch tape status, ready to be written over at a moments notice. To keep on top of things, occasionally (once every couple of months or so), run the following job:

```
//JOB CARD <--A Valid job card
// EXEC TMSINFO
//SYSIN DD *
VOL=tapevolume<--Your TMS tape #
/*
```

This will inform you of the status of the various files on your tape(s). It should be noted that the expiration dates (EXPDT=) reported by this utility are specified as Julian Dates. The table provided in this article

Perpetual Julian Date Calendar (Non Leap Year*)

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	001	032	060	091	121	152	182	213	244	274	305	335
2	002	033	061	092	122	153	183	214	245	275	306	336
3	003	034	062	093	123	154	184	215	246	276	307	337
4	004	035	063	094	124	155	185	216	247	277	308	338
5	005	036	064	095	125	156	186	217	248	278	309	339
6	006	037	065	096	126	157	187	218	249	279	310	340
7	007	038	066	097	127	158	188	219	250	280	311	341
8	008	039	067	098	128	159	189	220	251	281	312	342
9	009	040	068	099	129	160	190	221	252	282	313	343
10	010	041	069	100	130	161	191	222	253	283	314	344
11	011	042	070	101	131	162	192	223	254	284	315	345
12	012	043	071	102	132	163	193	224	255	285	316	346
13	013	044	072	103	133	164	194	225	256	286	317	347
14	014	045	073	104	134	165	195	226	257	287	318	348
15	015	046	074	105	135	166	196	227	258	288	319	349
16	016	047	075	106	136	167	197	228	259	289	320	350
17	017	048	076	107	137	168	198	229	260	290	321	351
18	018	049	077	108	138	169	199	230	261	291	322	352
19	019	050	078	109	139	170	200	231	262	292	323	353
20	020	051	079	110	140	171	201	232	263	293	324	354
21	021	052	080	111	141	172	202	233	264	294	325	355
22	022	053	081	112	142	173	203	234	265	295	326	356
23	023	054	082	113	143	174	204	235	266	296	327	357
24	024	055	083	114	144	175	205	236	267	297	328	358
25	025	056	084	115	145	176	206	237	268	298	329	359
26	026	057	085	116	146	177	207	238	269	299	330	360
27	027	058	086	117	147	178	208	239	270	300	331	361
28	028	059	087	118	148	179	209	240	271	301	332	362
29	029		088	119	149	180	210	241	272	302	333	363
30	030		089	120	150	181	211	242	273	303	334	364
31	031		090		151		212	243	274	304		365

* For leap years (1992, 1996, etc.) add a day on February - 060 - thus incrementing all the following dates by one.

should aid you in deciphering the expiration date(s) of your file(s).

Should the need arise, the TMC can be updated online or through batch by authorized personnel. If, for example, you wanted to change the expiration date of a tape, this could be accomplished by an update to the TMC. To request an update of the TMC, submit a TMS Update Form (available from the Computing Center, ISB 119) to a member of the Academic Computing staff. The staff member will assist you in completing the TMS Update Form and will make arrangements with the Computer Operations Tape Librarian to process the TMS update request. Run the TMSINFO Utility (shown above) three days after submission of the form to verify that the update has taken place.

For more information on the Tape Management System, type **HELP OPER** while in ***GO** mode on **MUSIC/SP** and follow the instructions.

Turnaround on the Hewlett-Packard 2680A Laser Printers

The Hewlett-Packard 2680A Laser Printers provide high quality computer-generated output with the flexibility of different character styles (fonts) and various character per inch settings. These printers serve users from the NAS/8083 and the VAXcluster. The laser printers print an average of over 5.5 million lines each week - more than ten times as much as any other Computing Center printers.

The HP-3000 system through which the laser printers are accessed serves all users on a first-come, first-served basis. All jobs routed to the Laser go through the steps described below:

When you route a print job to 'REMOTE 4' (or 'LASER') or 'REMOTE1' (or 'BA') using **MUSIC/SP**, the **VAX**, **COMPLETE**, or **CMS**, your job is placed on an output queue for that Remote. At this point a MUSIC user in OSJR

would receive information similar to the following:

JOB 299 ID32PRT OUTPUT READY -
ROUTE n 200 LINES

When your job is next in line to print, it is sent down a communications line from the mainframe to the HP 3000 system. Each half of the NAS/8083 has a communications line to the HP, so jobs spool to this system simultaneously from the ACAD and ADMN portions of the NAS/8083.

After a print job has been sent to the HP-3000 system via this communications line, the mainframe no longer has any record of the job. At this point, a MUSIC user would receive "JOB NOT FOUND" when querying OSJR for the status of his job. Keep in mind that at this point the job has NOT printed - it may be from 45 minutes up to several hours before it prints, depending on the volume and length of jobs already transferred to the HP-3000 system.

When your job is transferred to the HP-3000 it is placed on an output queue for one of the Laser printers. Jobs from both mainframes are placed on this queue for REMOTE4 in the order received - neither system has "priority". When your print job is first in line on the REMOTE1 or REMOTE4 system queue, it will be printed on the appropriate laser.

The apparent delay for users of the laser printers is caused by the number of jobs waiting to print on the HP system. Since this system receives output from multiple Host computers (the NAS/8083 and VAXcluster), it runs almost constantly during the day and night printing output as it is received. For a MUSIC user, a job may spool over to the HP system in five minutes or less. However, once transferred to the HP this job may be 125th in line, which means it will be at least an hour or more before it prints, depending on the size of the jobs preceding it.

To avoid waste of computer resources and needless increase of turnaround on the lasers, use the laser

printers only when you really need it – otherwise:

- Route output to REMOTE3 (ISB) if a laser print font is not necessarily needed, and for "test runs" of class projects. (Turn-around is usually QUICKER at these remotes, also).
- Thoroughly proof read and test jobs before requesting copies.
- Abide by the limit of 4 copies printed by any method. Use copy machines or the Copy Centers for further copies.
- Allow enough waiting time before you go to the ISB to retrieve your Laser output – 45 minutes at the least. Toward the end of the semester (last 4-5 weeks) it usually takes several hours.
- Check the "LASER PRINTER STATUS" board kept in the ISB Output window for a current estimate of REMOTE4 Laser turn-around time or type PSTATUS from MUSIC *GO mode to see a status display for all remote printers.

Consulting On Pirated Software

It is the policy of the Computing Center that no consulting will be done with users on microcomputer software that we know or have reason to believe is pirated. "Pirated" means that the software is being used in violation of the license agreement with the company that produced the software. So ... if you copy someone else's software and can't run it on your micro, don't come to us. \$

TWU Connected to THENET

Texas Woman's University is now connected to VAXB by a 4800 baud leased line and can also access the rest of THENET. The node names are TWUV1 (VAX 6330) and TWU20 (DEC20).

Computing In the Humanities

Using The Computer To Right The Canon: The Brown Women Writers Project

By Elaine Brennan



Any woman born with a great gift in the sixteenth century would certainly have gone crazed, shot herself, or ended her days in some lonely cottage outside the village, half witch, half wizard, feared and mocked at. For it needs little skill in psychology to be sure that the highly gifted girl who tried to use her gift for poetry would have been so thwarted and hindered by other people, so tortured and pulled asunder by her own contrary instincts, that she must have lost her health and sanity...that one would find any woman in that state of mind [to produce a work of genius] in the sixteenth century was obviously impossible...no woman could have written poetry then....

--Virginia Woolf, *A Room of One's Own*.

Thus Virginia Woolf theorized about what life would be like for a sixteenth century woman writer, since as far as she knew, there were none. Woolf's fictional poet has gained not only a room but also a life of her own even as literary critics and scholars have been restoring works by Woolf and many other fine women authors of the later 19th and early 20th centuries to the canon. Authors from earlier periods, however, have not received as much attention: many critics--even self-described feminist ones--have focused on the (presumed) isolation and anomalous situations of a few known women writers.

Women have always been writing. But the works of women who wrote during the 16th, 17th, 18th and early 19th centuries have been mostly inaccessible to both general and scholarly readers of the 20th century for a variety of reasons.

For many years there were explicit or implicit assumptions that said women should not write, but they did so anyway. For upper class women of the sixteenth and seventeenth centuries, there were other constraints as well: to be published during your lifetime (for either sex) was scandalous. Such writers routinely circulated their works in hand-copied editions, and male authors were generally honored with publication once they were dead. Women writers, on the other hand, were often memorialized by having their works hidden away in the family vaults. A few women writers were published, but even the most popular and prolific women authors' works were rarely reprinted after their deaths. Selections from these published authors were included in anthologies up through the mid-1850s, after which they suddenly began disappearing from view. Many women wrote in forms that are no longer popular, such as prayers, sermons, and religious narratives, which many literary theorists have used as a reason to ignore their work. Other works have been dismissed because women authors

used language differently from male authors, leading some critics to call them inferior. Although many women wrote novels before Daniel Defoe's *Robinson Crusoe*, the form was considered trivial and marginal until men began to use it. Even after the form was taken seriously, the many early novels by women were still ignored -- *Robinson Crusoe* is still often cited as the first real novel in English.

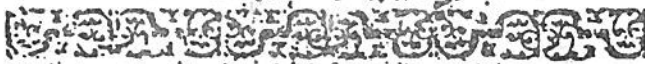
Brown's Women Writers Project (WWP), working with scholars from across the country to reverse the still prevalent stereotypes of women authors, has compiled a list of approximately 1,000 writers who flourished before Elizabeth Barrett Browning. Jane Austen and Barrett Browning are often seen as the first serious women authors, with all women who wrote before them viewed as oddities and anomalies. The WWP is now developing a full-text database of women writers in English before 1830 so that scholars and students alike can have a fuller picture of literary history. Imagine what it would be like, one scholar mused, if a third of the authors in a standard literature survey course were women!

What is the WWP?

The Brown University Women Writers Project is a National Endowment for the Humanities sponsored research project on pre-Victorian women writers in English. It seeks to be an inclusive full-text database, including both printed books and manuscripts, covering a large variety of genres (including letters, diaries, sermons, prayers, and translations, as well as the more traditional literary genres of prose, fiction, poetry, and drama).

The Project has a team of six well-known scholars directing it: Susanne Woods, Brown University (the Principal Investigator); Patricia Caldwell, Brown University; Stuart Curran, University of Pennsylvania; Margaret J. M. Ezell, Texas A&M

Figure 1. The primary material: because so much women's writing exists in manuscript form or in hard-to-read typefaces, simply being able to produce a readable printout is itself already helpful in recovering for readers these previously inaccessible works. The typeface on the top right, known as "black letter," was used throughout the handpress period. It is particularly difficult for the modern reader. The typeface on the bottom right is slightly more modern (c. 1621), but is still a difficult reading experience.

Vpon a day as I did mourne full sore,
For sundry things where in my soule was greiued:
My griefe increased and grew more and more,
I comfort had and could not be releued.
With heauinesse my hart was so mischaunced,
I loathed my life; I could not eate nor drinke:
I might not speake, my tounge to none that liued;
But mused alone and euer things did thinke.

This wretched world did sore molest my minde,
I thought vpon this false and tyrage;
And how our harts were so to paine inclined,
That Satans sounde most fearefullie to rage.
Nothing in earth my sorow could alluage,
I felt my Anne most stronglie to increase:
I greiued the spirit that went to be my pledge,
My soule was plunged into most deepe distresse.



Amphilanthus being now to be spoken of, after he had left *Pamphilia*, past along the sea, purposing to goe to *Atreia*, and so to *Albania*; but one in the Ship aduised him rather to take a nearer course, and vnderooke to be his guide, so he resolued, knowing him to be of *Macedonia*, and one who knew all those parts perfectly wel, besides, a seruant to his Cousin, the King and Queene thereof, gave credit and trust vnto him, and so they sailed, directed by him: yet *Amphilanthus* remembring the aduenture in *Cyprus*, called to mind his acquaintance and friend *Polarchos*, wherefore he would needs pue into *Rodes* to visit him, and take him along (if he could) with him. This was a happy thought for that poore Prince, who all this while continued in the Iron Cage weather-beaten, and almost starued by the crueltie and ingratitude, of his once best, and only beloued. When the King landed, he demanded of one that hee met, where *Polarchos* was: he being of a good nature

University; Elizabeth H. Hageman, University of New Hampshire; and Elizabeth D. Kirk, Brown University. A more broadly based advisory board is being developed to ensure that the specialized needs of scholars of particular periods and of par-

ticular authors are well represented. Allen Renear of Brown's Computing and Information Services and Jim Coombs of the Institute for Research in Information and Scholarship provide computer consulting for the

Project. The author of this article is the Project Manager.

How can the computer help? One benefit is almost immediate. A principal task facing the WWP is to make available texts that have been inaccessible, unavailable, or difficult to read (see Figure 1); the computer is an ideal tool to aid us in that reconstruction work. In addition, the computer can support multiple versions of a text. One version might include original typos and variant readings from other editions of the text. Another might be an error-free version designed specifically as a

reading text, which allows the reader to focus on the text as a literary object, not as a difficult reading challenge. But there are a great many other benefits to putting texts online--in having an online database of texts--as the rest of this article will show. However, the tasks involved in creating a useful database of texts are not as simple as just typing or scanning the words into a computer.

Building the Database

A major portion of the effort in creating a full-text database, apart from the traditional work of literary scholarship, is the systematic analysis of the texts and the development of a representation scheme that could reflect the results of this analysis. In other words, it is important to recognize that a literary text is more than just a sequence of words; it is an organized structure of special components. A play, for instance, generally contains stage directions, character identifications, and scene and act designations as well as lines of dialogue. Even a simple poem might include a title, dedication, stanzas, lines, and marginalia. Whether a sentence occurs in the

dedication, the title or a verse makes a big difference as to how that sentence is understood.

This structure is also crucial for scholarly research; a scholar studying meter must distinguish the words that are lines of verse from those that compose the title or the dedication. She must also be able to tell where one line of verse ends and another begins and where one stanza ends and another stanza begins. Similarly, to explore what concepts are frequently closely conjoined by an author, one must be able to tell not just whether two words are close to

Readers and scholars ordinarily rely on background information and typographical distinctions as clues for recognizing these components and their relationships. But for the computer to assist us in studying texts or even in typesetting them, we must have an explicit and systematic identification of these components stored in the database itself so that computer programs can recognize the different parts of a text without relying on background information or varying typographical conventions.

each other by some arbitrary measurement (such as "within five words"), but whether they are in the same poem, same stanza or same line.

Readers and scholars ordinarily rely on background information and typographical distinctions as clues for recognizing these components and their relationships. But for the computer to assist us in studying texts or even in typesetting them, we must have an explicit and systematic identification of these components stored in the database itself so that computer programs can recognize the different parts of a text without relying on background information or varying typographical conventions.

The question then becomes how best to represent the structure of a particular work explicitly in the electronic version of the text. This involves not only careful analysis of the individual work itself, but a general understanding and analysis of that work's literary form. For example, while a Shakespearean sonnet and a Petrarchan sonnet both are poems and both are composed of fourteen lines, they are also very different (a Shakespearean sonnet has three quatrains rhyming abab cdcd efef and a couplet rhyming gg; a Petrarchan sonnet has an octave rhyming abbaabba and a sestet rhyming cdecde or cdedcd).

Every type of writing has its own distinct vocabulary and grammar of text components. Novels, letters, scripts, sermons, and poems are all made up of different kinds of parts, although some of these parts may be more commonly discussed than others.

Much of our analysis and encoding practices are simply applications of traditional literary classification and analysis. But we have found that in order to develop a clas-

sification scheme that would support the kinds of computer-assisted research we envision, it is necessary not only to standardize the terminology of literary research, but to make refinements and extensions to the traditional theory.

In our database the components of a text are identified by markup tags. The markup systems we are developing conform to SGML (The Standard Generalized Markup Language, ISO 8879), an international standard for devising text markup systems. There is also an international task force, the Text Encoding Initiative (TEI), which is designing SGML-type markup tags and protocols specifically for the electronic encoding of literary texts.

Sponsored by the Association for Computing in the Humanities, the Association of Literary and Linguistic Computing, and the Association for Computational Linguistics and funded by the National Endowment for the Humanities, the steering committee of the TEI consists of rep-

representatives of major library and text archives, industry associations, and scholarly societies from many countries. The Brown Women Writers Project is affiliated with this task group and will be testing and reviewing their recommendations.

Figure 2 presents an overview of our basic approach. The box in the leftmost panel represents the database of fully analyzed texts with their structures explicitly indicated by markup tags.

The middle panel of the diagram represents some of the different

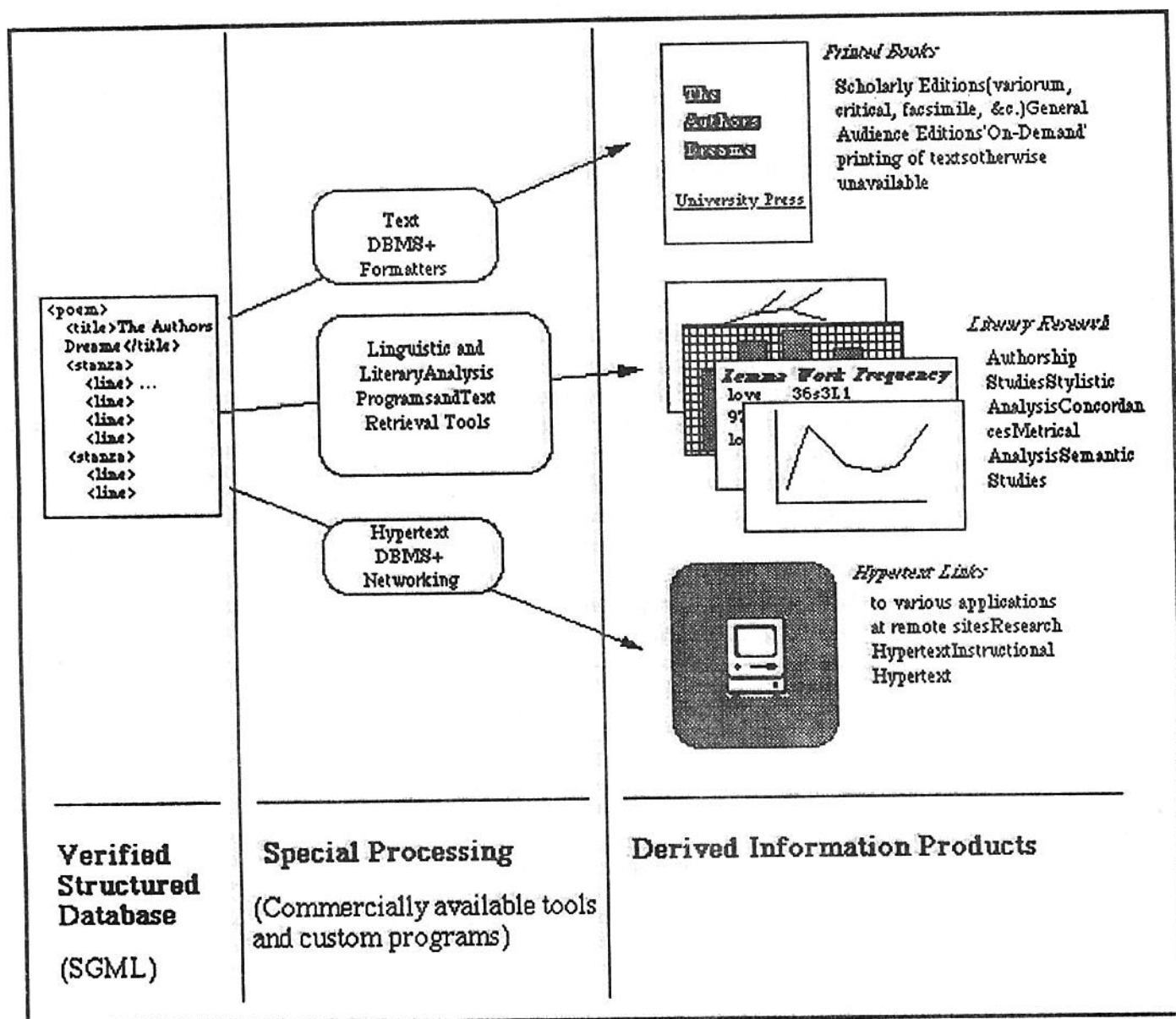


Figure 2. How the Women Writers Project is using the computer: a single database is used to generate many information products for research and instruction.

sorts of processing that might be performed on the database. Since the database itself is independent of any particular application software and conforms to a well-understood standard for markup we can use many different tools to study it without encountering problems with file format compatibility or data interchange.

The rightmost panel represents the various information products that result from applying different special processing to the database. For instance, one common product will be printed books and anthologies. Using a database management system (DBMS) we will be able to select those texts from the database to be

archaic spelling will be included. And different formatting rules would undoubtedly be applied--ones designed to create a visually lucid text for scholarly study, rather than the ones that conformed to the style of a publisher's series. Again, using a database management system a different selection from the database can be made and formatted by simply specifying different formatting rules for each kind of text component.

The WWP is already doing on-demand publication as scholars across the country learn of texts now available on the database which have either never been published or never

None of these specific applications will alter the original database. Each is merely a specialized processing of the existing database that leaves it unchanged. Not only is this approach simple, powerful, and flexible, but it does not depend on any particular software or hardware and it does not require that specific scholarly needs be determined in advance. As a consequence we can exploit future progress in computing software and practices without sacrificing our initial investment in analysis and coding. For instance, currently we format our files with Script/GML and print on the Xerox 4050 for on-demand production printing of text

included in a book and then systematically format them in a style appropriate for the volume being produced. A poetry collection in a series for the general reader will omit information, such as the indication of original page breaks or comparison of variant lines from different editions that would be included in

The WWP is already doing on-demand publication as scholars across the country learn of texts now available on the database which have either never been published or never been reprinted since their original publication dates.

or on the Apple LaserWriter (using the Script PostScript post-processor) for prototyping specialized layouts. But if we decide to switch to TeX in the future we can do so without altering the database itself. Similarly we now use custom Rexx macros for text analysis, but we could switch to the Ox-

a scholarly edition of the same poems. It will also correct without comment typographical errors and misspellings or archaic spellings. Finally, it may need to be typeset according to the general design of the publisher's series in which it is being issued. Using a database management system and exploiting our analysis of the text into its major components we will be able select and arrange only those parts appropriate for a general edition. Then the required formatting rules can be systematically applied; for example, all titles can be centered, printed in larger type, and italicized without each individual title having to be changed, since all titles were previously identified with a "title" tag.

On the other hand, if a scholarly critical or variorum edition is being created, then such things as indication of original pagination, editorial variants, typographical errors, and

been reprinted since their original publication dates.

As well as supporting tailored publication the same database will support literary research such as stylistic studies, concordances, metrical analysis, and content and semantic studies in a way that is far superior to unstructured databases. We will be able to pose questions that depend upon recognizing the major editorial features of a work, and not just the incidental formatting.

Finally, the same database could support network access either for general purpose querying or incorporation into large instructional or research hypertext systems. Some of the texts the WWP already has online are being incorporated into George Landow's Context32 application of Intermedia, a hypermedia teaching tool being used in English courses at Brown.

ford Concordance Program without converting our data.

Most importantly, this approach--bringing specialized tools to bear on a general purpose database--supports creative scholarship without preempting or prejudicing it.

Computer-Supported Cooperative Work

In order to develop its computing techniques for scholarly research and instruction, the Women Writers Project is also devising general tools and strategies to support its own electronic collaboration. For instance, files are often shared but there must be rigorous control over the integrity of the text. Collaborating on text revision and sharing data also involves tracking and auditing all changes. The editorial state of every document in the database must

be carefully monitored and documented throughout the project. With many scholars and students working on text input and analysis we must ensure that everyone is using the same version of our applications and working in identically configured computing environments. We are also evolving mechanisms for communication and decision-making within the group, for reliable documented backup, and for project management.

While at some point the project hopes to have a local area network that supports these functions, at present the VM mainframe provides us with the most comprehensive and reliable services for sharing resources, communication, and control. In particular we use MDisk and VMSecure to support file and software sharing, Help, News, and Mail for general purpose communication, and Profile Execs and Xedits to create standard configurations. Data entry is supported by Xedit macros and file manipulation is done with the programming language Rexx. Specialized utilities on the English Disk, such as \$Scan, are also used. In working out procedures for organizing our work we have learned from the experience of other local collaborative projects, such as the Art Department's Graduate Student Catalogue project and the English Department's Hunt/Tupper Letters project.

Electronic mail not only helps project staff members communicate with each other and with the project directors, but it also helps us communicate and share files with others working on similar projects at other institutions. For instance, we communicate with the Oxford Text Archive at Oxford University, the Center for the Computer Analysis of Texts at the University of Pennsylvania, and the Text Encoding Initiative at the University of Illinois. The project also has its own "Listserv" electronic mailing list for communication and conferencing among the directors.

Another way the computer benefits our project is through easy access to relevant electronic journals and discussion lists on Bruno. Two that are particularly important are Humanist, a discussion list for Humanities computing located at the University of Toronto, and English, also located at Toronto. Bruno lets us not only keep up with these journals and search their archives for topics of interest with its SCAN command, but it also supports a local conference on literary databases, Markup, where we hope to discuss problems of creating literary databases with others working on similar projects.

Both through electronic means and at meetings of the Computing in the

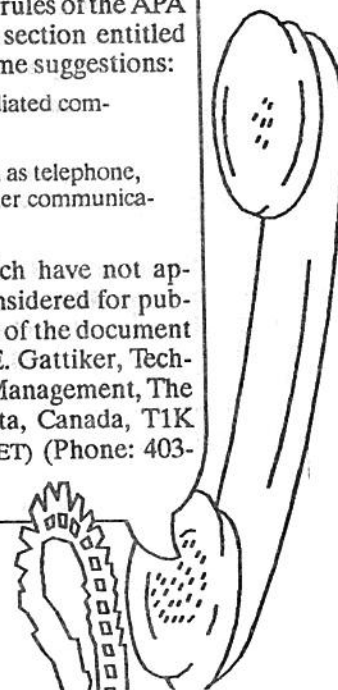
Humanities User Group (CHUG), the Women Writers Project project shares information and solutions with other similar projects. For instance, the Harvard/Annenberg Perseus project (Elli Mylonas, Managing Editor) is preparing a text database of Greek literary works and dealing with the same problems of analyzing various literary forms into their natural components, representing this structure in electronic form, and creating tools and strategies for computer-supported cooperative work. We also share ideas with Sanda Golopentia-Eretescu (French), who is preparing a database of Romanian love incantations and charms; George Landow (English and Art History), who in

CALL FOR MANUSCRIPTS

Manuscripts are being solicited for inclusion in *Management and Technology-Mediated Communication, Volume III*, part of the series of books, *Studies in Technological Innovation and Human Resources*, published by de Gruyter (Berlin and New York). These books bring together research, critical analysis, and proposals for change in the field of inquiry: Technological innovations and how they affect people in the workplace. "Technology" includes computers, information systems, telecommunications, computer-aided design and manufacturing, artificial intelligence, and other related fields. Each manuscript should strictly conform to the rules of the APA style guide (3rd Edition) and must contain a section entitled "Implications Research and Management." Some suggestions:

- Report on cases of successful technology-mediated communication in organizational settings.
- Compare various communication means such as telephone, computer mail, video and typewritten and other communication processes and outcomes.

All submissions must be original works which have not appeared elsewhere, and which are not being considered for publication anywhere else at this time. Five copies of the document must be submitted by February 1990 to: Urs E. Gattiker, Technology Assessment Research Unit School of Management, The University of Lethbridge, Lethbridge, Alberta, Canada, T1K 3M4. (BITNET: GATTIKE%VP@UNCAEDU.BITNET) (Phone: 403-320-6966) .§



addition to managing the Context32 application of Intermedia, also organized the computerization of the Art Department Catalogue project; Jim Coombs (IRIS), who coordinated the Hunt/Tupper Letters project; and others who have worked or are working on text projects in Classics, Religious Studies, and Slavic Languages. And Brown is, of course, also the home of the Kucera/Francis "Brown Corpus" of English--so it is, all in all, a very congenial environment for developing a large text database.

Conclusion

Literary texts are not abstractions. They exist as cultural objects that by inclusion in the accepted canon of literature shape and frame the questions it is possible for us to ask about our history. The exclusion of women from that canon, however it was accomplished, skews the images we have of what is possible for a woman to do and what women have done in the past. As the large volumes of neglected writing that the Women Writers Project is working to make available are added to the traditional canon, they cannot help but set off massive reverberations. In the same way, computer-assisted literary research studies have begun to change the way many scholars deal with their work. By combining the recovery of these neglected works and the power of computer-assisted scholarship, the Women Writers Project is preparing for a revolution.

About the author: Elaine Brennan is Manager of the Women Writers Project. She has been reading and studying early women writers for almost ten years.

This article originally appeared on pages 7-13 of *Brown Online* (vol 2), a journal published by Brown University Computing and Information Services in May, 1989. This article was received from the articles database of *CCNEWS*, the Electronic Forum for Campus Computing Newsletter Editors, a BITNET-based service of EDUCOM. §



The following article is reprinted, with permission, from WordStar News, Issue 4.2. The author, Gale Rhodes, is executive director of Fog International Computer Users Group.

I was raised in Wyoming and the history of the Wild West and pioneer days was an integral part of my upbringing. Quilting bees, barn raisings, and round-ups -- past and present -- showed how much could be accomplished if neighbors shared the work and the fun. By accident, I discovered the modern-day analogue: computer users groups. Certainly I had heard of them; but until I called on one for help, I had no idea of their enormous value. In this article, I hope to pass on some of that tradition so that you'll discover the benefits of belonging to a users group.

Heading Into the World of Computers

After I bought my first computer back in 1981, two things were immediately clear. The computer was going to be a much bigger part of my life than I'd envisioned and the software that was included (WordStar 2.26, SuperCalc 1.05, MBasic, CBasic, and CP/M 2.2) was great but not what I needed for inventory control. In between phone calls to computer dealers, I spent time discovering the tricks and aggravations of using a computer. Each new task took literally hours to figure out. Documentation was skimpy at best (later releases were much improved) and too full of "computerese" to make much sense to me.

Finally, through the telephone, I discovered a computer salesperson who understood my questions, provided answers, and had a selection of software that might suit my needs. The drive of forty miles each way was well worth it -- but, as it turned out, not for the software. Instead, I found a flier about a users group. There it was: barn raising, computer style.

Immediately I began making a 100-mile round trip every Thursday to attend their meetings. After each meeting I came home so excited that sleep was impossible; I just had to try out the new ideas and tricks discovered.

Users Groups Then . . .

In one way, it was easier in 1981 than it is today to take full advantage of attending a users group meeting: our computers were about the size of portable sewing machines. So we all took our computers to meetings. The hall in which we met had been designed specifically for meetings of computer users so there were hundreds of electrical outlets. Instead of each contributing our skills to build a barn, we solved computer problems and shared computer knowledge.

If someone had a problem, someone else could sit down at the system and demonstrate the solution. Anyone with a tip on doing a job easier or better could tell others by specifying the steps involved while the rest of us followed along on our own computers. This was how I learned to MergePrint three-up mailing labels so that each name and address always started in the second column of each label.

and Now . . .

Today, many computers are bigger, more powerful, and more complicated -- and sometimes less expensive -- than in the old days. Software is more sophisticated -- and often more expensive -- and documentation is more detailed. The variety of options from which a buyer must select are innumerable. And sharing information through computer users groups is still the best resource. If that statement surprises you, you haven't participated in a users group. Read on.

Should There Be a Users Group In Your Future?

As a first step, recognize that you don't have to own a computer to enjoy the benefits of belonging to a users group. If you join a group before buying your system, chances are you'll save money thanks to the guidance provided by group mem-

bers. Whether you're buying an entire system or looking for new software, once you think you have defined your needs, talk to others. Those using the product you are considering and those who would never choose that product both offer information that can save you time, money, and frustration.

How about some specific questions you might get answered and ways you might benefit from a users group?

- Considering a new monitor? Do you really need one? If so, will it need a new graphics adapter card? Which one?
- Desperately need a file that was accidentally erased but the backup disks can't be restored? Can you get it recovered? (Step one: Don't write anything to the disk until the file is restored.) How can backing up be made more reliable?
- What can you do if you bought your system from a dealer who has since gone out of business?
- Do you want to add another disk drive? What drive should you buy? What must you do to install it? What about adding more memory? Is it possible? If so, what? How?
- Need help learning to use that modem you bought months ago? Is your cable correctly configured? Is your communications software properly installed? What do you need to know about the system you will be calling?

All of this information and much more is available for the asking. Chip in a few dollars a year to finance a meeting place or a newsletter and you'll recover your investment many times over. Volunteer a few hours of service and your computing skills will increase geometrically. Share a pet peeve and you'll get a long list of solutions or alternatives. Reveal your favorite shortcut and, thus en-

couraged, others in the group will do the same.

A Users Group In Action

Suppose you are using a Wyse Technologies PC-286 with a 40Mb hard disk, a Hercules monitor, and an Epson FX-100. The only major software you use is WordStar 4 and SuperCalc4. Everything has worked flawlessly for over a year. Then along came WordStar 5.5 and SuperCalc5, both with features you really want. Plus you'd really like a color monitor. While you're at it, why not finally install that 3 1/2-inch drive that has been sitting in the closet -- along with MS-DOS version 3.3.

You ordered the monitor from one mail order house and the graphics adapter card from another; you purchased the drive at a swap meet; MS-DOS, at a local software store; and you ordered updates from WordStar and Computer Associates. Sure, you may have gotten good prices, but you no longer have a system that has been tested to be sure all of the components work together.

First you backed up the data files before reformatting the hard disk for the installation of MS-DOS 3.3. But when you try to install your applications software, strange things begin to happen. The system locks up or files can't be found or the speaker emits a loud squeal. Each time you try, something different happens. Where do you go for help?

Can Manufacturers Help? You're likely to find out that this is an instance in which a manufacturer cannot help because the problem is not related to the specific product in question. It is unreasonable to expect WordStar Technical Support to have the answer. It is equally unfair to expect Computer Associates (SuperCalc), Wyse, either of the mail order companies, or the software store to be able to solve the problem. There are too many products involved. Had you purchased all of the hardware

from a single dealer, it would be reasonable to expect that dealer to get everything working; asking several unrelated vendors to help resolve the problem is asking for frustration.

If that seems unfair to you, think of buying a computer and software as bit like buying a car. Neither the salesperson, the dealership, nor the manufacturer is going to teach you to drive. And if you replace the gas tank and fuel system so that the car runs on propane, they won't want to service it.

Who Can Help? Two sources of help do exist: a computer consultant or a users group member. The former will charge you a fee, either hourly (\$60 to \$100 per hour) or a flat rate (\$100 to \$250). By contrast, the users group member will expect you to be a member of the group and that you will help another user in some manner more suited to your skills and knowledge.

Joining Up

A users group is filled with people from all fields. All share an interest in computers; but their own interests are as diverse as genealogy, word processing, spreadsheets, statistics, games, time management, programming, hardware, accounting, mailing lists, or pie charts. Through a users group, you'll hear of computer applications of which you may never have dreamed. And it's all part of your membership!

Local Groups. When you join a users group (the fee will vary from group to group but the average is \$25 to \$40 per year), you normally get a newsletter and access to a library of public domain and shareware software. Groups with memberships limited to a specific geographical area often offer monthly or more frequent meetings. Well-organized local groups also offer a list of members willing to be called when problems arise.

Finding One for You. There are, of course, many ways to find a users group that will fit your needs. You can ask at your local computer store, check the computer-oriented papers, or talk to any friends or co-workers who use computers. There's also a quicker way. Fog International Computer Users Group can help you locate the users group that best fits your needs.

Fog? Aside from helping you find the group that's right for you, what else does Fog do? Fog publishes a monthly magazine with articles and news of interest to its affiliated groups around the world. It also maintains disk libraries and a technical support staff to answer members' calls for help. In addition, Fog supports the affiliated groups by contributing 25 percent of the annual Fog member-

ship dues to the group specified by the member.

Meetings are organized by affiliated groups around the world (because of its geographically diverse membership, Fog meetings would be impractical). Since most members of these groups receive the Fog magazine, the groups can limit mailings to announcements of meetings and special events.

To locate a users group near you, send a self-addressed, stamped envelope and a note indicating your primary and secondary interests (for example, what computer are you using and what software you are most interested in) and the telephone area codes near you to Fog (P.O. Box 3474, Daly City, CA 94015). To join Fog, send \$30 with your name, address, telephone number, and computer model to the same address.

User Groups You Might Want to Join

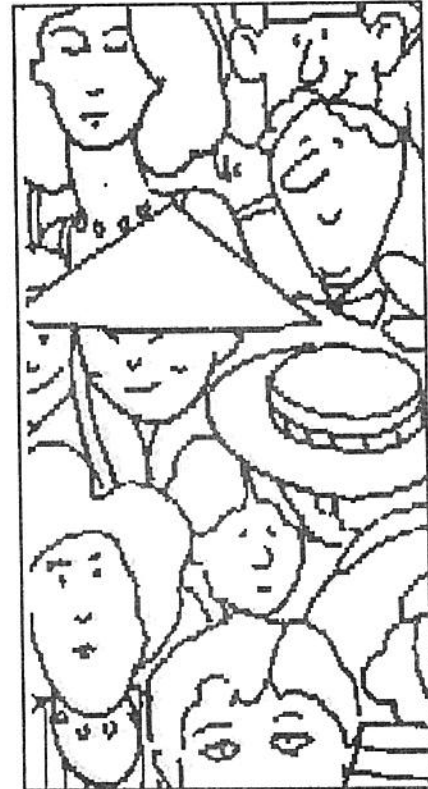
Although this article is directed toward microcomputer user groups, the information contained herein applies to any user group. Following is a list of user groups that may be of interest to people here at UNT.

- **Dpublisher: The Association for Desktop Publishing** (local VPUG chapter) -- P.O. Box 38265 Dallas, Texas 75238.
- **SUGI (SAS Users Group International)** -- To get involved with this group, subscribe to *SAS Communications*, SAS Institute Mailing List Coordinator, SAS Circle, Box 8000, Cary, NC 27523-8000.
- **VPUG (Ventura Publisher Users Group)** -- Voice: (408) 227-5030; FAX: (408) 224-9086; BBS: (408) 227-4818; Mail: 7502 Aaron Place, San Jose, California 95139.
- **WPSG (WordPerfect Support Group)** -- Mail: Lake Technology Park, P.O. Box 130, McHenry, MD 2154; FAX: (301) 387-7322, CompuServe EasyPlex: 74020,10; CompuServe Forum: GO WPSUG; Word-Perfectionist (Magazine): (301) 387-4500
- **IEMUG (International Electronic Musicians User Group)** -- Local chapter: Eric Lipscomb, IEMUG Vice President, P.O. Box 3020, Denton, Tx. 76202-3020; National Headquarters: Jonh Fordenbacher, IEMUG President, P.O. Box 30995, Midwest City, OK 73140.

WANTED

PART-TIME PROGRAMMERS

- **COLLEGE OF ARTS AND SCIENCES** - Looking for someone to support programs for computerized degree plans; assist with network management and tape backup system. Experience in R:Base V and Novell networks helpful. Position is on-going for 10 to 20 hours a week. Hours to be arranged. Contact Eloise Green, 565-2051, for more information.
- **ACADEMIC COMPUTING SERVICES** - Looking for energetic individuals to work on the Computing Center's microcomputer/network software support team. Advanced knowledge of MS-DOS and experience with MS-DOS applications is required. Programming experience in Pascal or C as well as Macintosh experience is desired. Position will be 20 hours per week. Send resume to Dave Molta, Director of Academic Computing Services, ISB Room 119.



BENCHMARKS FORUM

BENCHMARKS FORUM is intended to serve as a vehicle for answering questions that may be of general interest to the user community. If you have a question, please send electronic mail to the *Benchmarks* editor (BITNET: AS04@UNTVM1) or write it down and drop it by the Computing Center. We will try to answer it in the next issue.

Question: I need to run a program that uses 20 minutes of MVS/SP CPU time. How can I get permission to run my job?

Answer: Special permission is not needed to run a job with extended cpu time, but there is a special procedure for getting such a job executed.

First, submit the job, but with CLASS=J on your JOB card rather than CLASS=A (for more information on job classes, type HELP JOBCCLASS from *Go mode in MUSIC/SP - for more information on the JOB card, try HELP JOB-CARD).

Jobs submitted CLASS=J will not automatically execute. You must request that the NAS CPU operator schedule your job for execution via a Special User Request Facility (SURF) message. To send a SURF message, type SURF from MUSIC *GO mode. You will need to supply such information as the name of your job, your name, and a message as to the nature of the job (i.e. "this job will use 20 minutes of cpu time"). For information on using SURF, type HELP SURF from *Go mode on MUSIC.

Question: How do I report dial-up modem and Sytek network problems?

Answer: The procedure to report any kind of modem or Sytek problem is to call the Computing Center (817) 565-2324. When the phone is answered, you should state that you are having communications problems and that you would like a Trouble Call Form filled out. This form will be forwarded to the Computing Center technical support personnel. The technical support personnel will then respond to the call and work on fixing the problem.\$

Benchmarks Reader/User feedback is encouraged. Send all letters, suggestions, etc

to (AS04@UNTVMI), FAX 817-565-4060 or to the Benchmarks

Editor at:

Academic Computing Services
University of North Texas
Computing Center
NT Station, Box 13495
Denton, Texas 76203



THE BITNET CONNECTION

By Philip Baczewski, BITNET INFOREP (BITNET: AC12@UNTVMI)

This Column is a continuing feature of Benchmarks intended to present news and information on various aspects of the BITNET wide area network.

Your Serve...

What better way to start out the academic year than by featuring two BITNET services dedicated to the needs of faculty, staff, and students of institutions of higher education. ISAAC (Information System for Advanced Academic Computing) and OASIS (Online Academic Software Information System) are both free of charge and accessible through BITNET, although both support dial-up access from a PC with a modem.

ISAAC, which is managed from the University of Washington, provides information related to the use of IBM computers and software. The following description is from the file BITNET.SERVERS on MUSIC. It describes how to apply for access to ISAAC:

ISERVE @ UWAE - University of Washington

Isaac is the Information System for Advanced Academic Computing. Isaac is funded by IBM to serve as a clearinghouse for information about the use of IBM computers and compatible software as aids to instruction and research in higher education. Access is open to all faculty, students and staff at institutions of higher education and to members of participating professional societies.

While access to Isaac is free, you must apply for access using the form listed here. Note that both PC/modem dial-up access and BITNET access are available. BITNET access is specific to your userid. Using Isaac through the PC is much faster and more interactive, but if you don't have the equipment, BITNET access is possible. You must apply for access:

Complete this application and mail it to ISAAC@UWAE. User materials will be mailed to you. This may take two to three weeks.

1. Name
2. Address, City, State, Zip
3. Phone: (w) Please include area code.
4. University
5. Your BITNET address
6. You may connect to Isaac in two ways. Each method requires separate authorization. Please indicate which method(s) you would like to use. If you choose modem access, we will provide the communications software you'll need.

* IBM PC, XT, AT or compatible and a modem. (US except WA) Please specify diskette size 5-1/4 or 3-1/2

* BITNET. (You must include your BITNET address above.)

ISERVE @ UWAE accepts commands via a BITNET interactive MESSAGE.

OASIS is provided by the Illinois Educational Consortium. The following information was taken from the OASIS Info file acquired over BITNET. It describes the purpose of OASIS and how to access it over BITNET.

OASIS is a catalog of microcomputer software suited for use in higher education. Faculty will want to use it for planning curricula. Students can use it to find software to supplement their courses. Staff will find it helpful to identify software for research. Access to and information on the OASIS database are free to users.

OASIS is interactive: customized searches may be conducted using up to 16 criteria such as package name, category, machine requirements, cost, and publisher. Entries consist of a concise description, review citations, authors' names, machine and pricing information, and publishers' names, addresses, and phone numbers. The database is constantly updated and expanded.

For instructions on how to search the database through BITNET, either send an interactive message containing only the command "HELP" or send an E-mail with the command "HELP" as the first line of the text in the message (the subject line is not required) to OASIS@ECNDC.

OASIS is available at all times except during weekly maintenance. The hours it is not open are:

Tuesday - 6 a.m. to 9 a.m.
Friday - 10 p.m. to 2 a.m.
Sunday - 7 a.m. to 2 p.m.

The software packages listed in this database are not an endorsement of their usefulness, and we make no warranty of any kind with regard to this written material.

For more information on the OASIS Project, please contact:

Ms. Adalma K. Stevens, Director
OASIS Project
2040 Hill Meadows Drive, Suite B
Springfield, Illinois 62702
217/782-6392
BITNET: XAKS@ECNDC
FAX: 217/524-7741

LIST of the Month

Each month we will highlight one of the BITNET LISTSERV Special Interest Group (SIG) mailing lists. This month's list...

WP50-L@UBVM - WordPerfect 5.0

This list is intended to be used for discussing WordPerfect 5.0 and it's related products. Although the main focus of this list will be WP V.5.0, it will not be limited to this in the beginning. Any WP Corporation product can be discussed.

Academic Computing Services maintains site licenses for WordPerfect 5.0 and several other WordPerfect products as well. If you are using any of those WordPerfect products, this list may provide you with the tips and tricks to make your usage even more productive. To participate in this list either type ANU on the VAXcluster and choose the WP50-L list or, from CMS or MUSIC, send the following command to the BITNET ID LISTSERV@UBVM:

SUBSCRIBE WP50-L <your full name>

There are currently 93 different categories upon which searches to the OASIS database may be made. These include accounting to word processing, with a host of other disciplines in between. Searches can be narrowed to specific operating systems or computer types as well.

These services are ready available to anyone at UNT who has BITNET access, with one exception. Those who have only MUSIC ID codes may not be able to access ISAAC, since it appears to accept only interactive messages. If you wish to use ISAAC

and you only have a MUSIC ID, you may apply for a VAX or CMS ID with the same ID code number. If you need help in using applying for an ID or in using BITNET, Academic Computing Services has several consultants who can provide it. Contact the Computing Center Offices to arrange for an appointment (ISB 119, 565-2324), or sign up for our BITNET short course. ISAAC and OASIS are out there ready to be used - as they say, "the ball's in your court..."\$

MICROCOMPUTERS

WordPerfect Site License Products Price Increase

By Sandy Franklin, Academic Computing Services Microcomputer Support Staff

Site Licensing through WordPerfect Corporation is available for University owned equipment that is used on campus only. The prices for the manuals have increased from \$35 to \$40 each. Also a 10% handling fee will be charged per IDO. The products and prices are as follows:

- **WordPerfect 5.0**

- * \$23 each workstation
- * Standalone/Network -- \$40.00 each manual

Normal word processing capabilities with graphics, extensive printing capabilities, manuscript enhancements such as master document, creation of table of contents and index, using style sheets, alternate keyboards, newspaper, math, and parallel columns, and sorting.

- **WordPerfect Library**

- * \$14.00 each workstation
- * \$40.00 each manual

A desktop integration and utility program designed to enhance office productivity which includes a memory resident Shell program manager, Calculator, Calendar, File Manager, Notebook, Program Editor, and Macro Editor, as well as a vehicle to get to WordPerfect, PlanPerfect, and/or DataPerfect.

- **WordPerfect Office**

- * \$23 each workstation
- * \$40.00 each manual

A desktop integration and utility program for NETWORKS only, which features Scheduler, Notebook, Calculator, Calendar, Mail, File Manager, and Macro/Program Editor, as well as a vehicle to get to WordPerfect, PlanPerfect and/or DataPerfect.

- **PlanPerfect 5.0**

- * \$23.00 each workstation
- * Standalone/Network -- \$40.00 each manual

A spreadsheet, data management and graphic program that provides all the features expected of a full-featured spreadsheet package and compatibility with WordPerfect. It can also read and write to Lotus

123 files and emulate Lotus and WordPerfect commands.

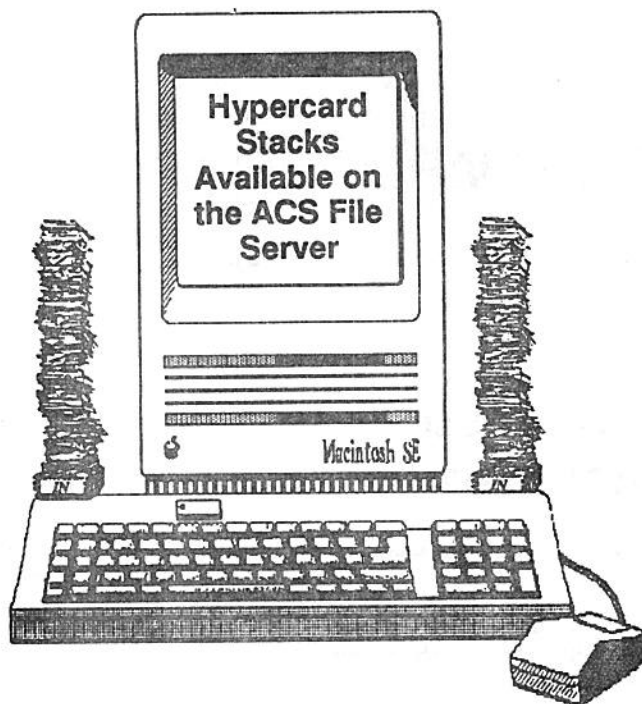
The software price includes installation of the software on individual equipment, template, and Quick Reference Cards.

The software purchased with School Site Volume Pricing must remain the property of the school and may not be loaned, transferred, or resold to off-campus users. Software purchased under this agreement may be used only at official school sites and may not be used off-campus by anyone, including teachers, staff, and students.

Qualifying teachers, as well as college, university, and other post-secondary students can purchase WordPerfect software directly from WPCORP at a reduced rate. To qualify, a participant must be a full-time teacher/administrator or currently enrolled as a full-time post-secondary student, and must agree in writing not to resell or transfer any package purchased under this program.

- WordPerfect 5.0 -- \$135.00
- WordPerfect 4.2 -- \$125.00
- WordPerfect Mac -- \$99.00
- WP Library -- \$59.00

For a copy of the Direct Order Form, go to the Computing Center main office, ISB 119. A photocopy of your current Faculty/Student ID must accompany your completed Direct Order Form. §



By Billy Barron, VAX System Manager (BITNET: BILLY@UNTVAX) and Mark Thacker, VAX Operator (BITNET: MARK@UNTVAX)

The Macintosh computers in the Graphics Lab and ISB 110 are connected to the ACS file server. On this file server, some useful public domain and shareware Hypercard Stacks are now available. These stacks may aid students in learning new material or provide a nice refresher course.

For those of you who are unfamiliar with Hypercard, it is a program that provides the user with a graphical way of addressing a great deal of information. It is not totally unlike an advanced rolodex. Some people have described it as a graphical relational database. Hypercard also has several tools to help people develop and use their own stacks as well as modify the stacks that are available. Everything from paint brushes for graphics work to script editing for card construction is available as part of the standard Hypercard environment. It is worth noting that you do not have to use any special tools to take advantage of the Hypercard stacks available on the ACS file server.

One other note, on a color Macintosh (like the Macintosh II's in the Graphics Lab), the screen must be set to Black & White mode to see any visual effects that the Hypercard stacks might contain. Follow these steps:

- 1) Click and hold on the Apple menu in the upper left of the screen.
- 2) Drag down and release (select) on the Control Panel option. The Control Panel will appear in the middle of the screen.
- 3) Click once on the Monitor icon. The monitor settings will appear.
- 4) Click on the number of colors wanted: two (2) in this case. There is no need to choose the Black & White button because the Mac assumes two colors to be black & white.
- 5) Click on the close box in the upper left of the Control Panel.

Now your Mac is in the correct mode for Hypercard visual effects. When you are done working with Hypercard, you might want to change the Mac back to 256 colors. Follow the above steps, except choose 256 colors in step number four.

The public domain Hypercard stacks are on the ACS file server in the folder:

**VOL1:Macintosh Programs:
Hypercard:PublicDomain Stacks.**

The stacks currently available include the following topics:

1. Astronomy
 - a. Information on near-by stars
 - b. Question and Answer
2. Biology
 - a. North American Birds
 - b. Dinosaurs
3. Chemistry - Periodic Table
4. Computers
 - a. Hypercard Programming
 - b. Disk labeling
 - c. Disk organization
 - d. Introduction to using Hypercard
 - e. Computer Virus Encyclopedia
5. Foreign Languages
 - a. Esperanto
6. Mathematics
 - a. First order logic
 - b. Turing machines
 - c. Function plotting
 - d. Combinations
7. Miscellaneous
 - a. Calendar
 - b. Geneology
8. Physics - Dipole Impedance Calculator

These stacks are available for student and classroom use. Please feel free to copy these stacks to your own

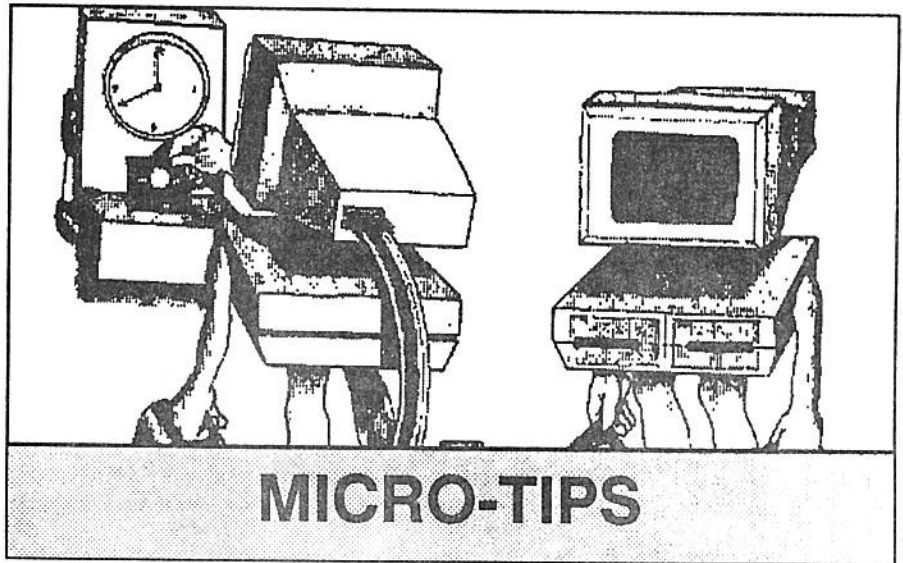
floppy disks if you have access to a Macintosh outside of the University. If you are regularly using a shareware stack, please send in the requested registration fee. As time and disk space allow, more public domain and shareware stacks may be added to the ACS server. §



Did you know that one CD-ROM stores the same amount of data as ...

- 270,000 pages of text, or
- 20,000 pages of images scanned at 300X300 dpi, or
- 10,000 pages of 1/2 text and 1/2 graphics, or
- 1,200 microfiche cards, or
- 1,104 hours or 46 days of data transmission at 1200 baud, or
- 27 twenty-megabyte Winchester disks, or
- 10 standard 1/2" 9-track magnetic tapes or
- One hour of full-motion, full-screen, full-color video.

From DDRI, Falls Church, Virginia. Quoted in Information Center Magazine. §



This column is intended to serve as a forum for sharing useful tips on making more productive use of microcomputers. If you have a tip that you feel may be of use to campus users, submit it to the Benchmarks editor for possible inclusion in a future issue.

Know Thy Virii*

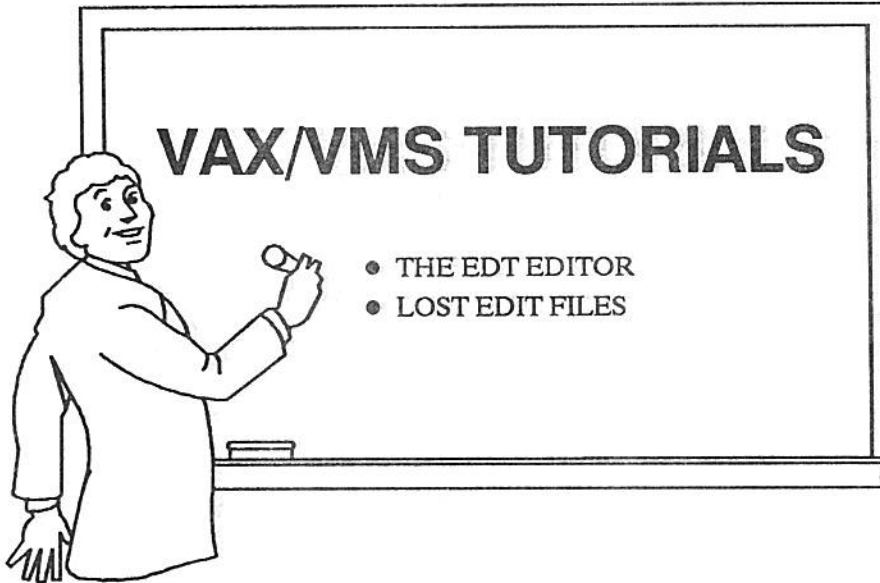
Computer viruses (virii) have been in the news quite a bit during the past year. Although problems with computer viruses have exceeded the attention span of the news media, they are still something everyone should take precaution against. Following is a list and brief description of some "known" viruses.

- **The Israeli (Jerusalem) Virus - IBM PCs and Compatibles.** Infects .COM and .EXE programs and can affect floppy and hard disks. This virus infects a program's disk image, causing it to increase by just over 1800 bytes. If you run an infected program on Friday the 13th, it will become a Trojan Horse and either trash your disk or delete programs as they are executed, depending on the version you were infected with.
- **The Lehigh Virus - IBM PCs and Compatibles.** Infects COMMAND.COM. After this virus has copied itself four or ten times, depending on the version, it trashes your hard disk.
- **The Pakalstanl Brain Virus - IBM PCs and Compatibles.** This virus infects the boot sector of a floppy disk. It takes over the floppy disk controller interface and looks for certain operations on the disk. The virus immediately starts to mark areas on your disk as bad even though they are good. Eventually, you will have nothing but bad sectors.
- **The Alameda Virus.** Infects the boot sector of a system disk only on true IBM PCs (no 80286s). The virus takes over the last track of any non-write protected disk in drive A during a warm boot. Can cause severe memory problems, because it stores itself in high memory and no other application can load on top of it.
- **nVir.** A Macintosh virus that invades the System File. There are many versions that have their own characteristics.
- **Scores.A** Macintosh virus, thought to account for about a third of all viral "Mac attacks." This virus also infects the System File, increasing any Mac application's size by 7000 bytes.
- **The dBASE Virus - IBM PCs and Compatibles.** This virus intercepts calls to DOS interrupt 0x21 and looks for open calls to files with a .DBF extension. After 90 days it destroys the file allocation table (FAT).
- **The Screen Virus - IBM PCs and Compatibles.** Infects every .COM program in the current directory.

So what can you do? The best advice is to be sure and make frequent backups, especially BEFORE you install new software (even if it is shrink-wrapped). You can also buy a variety of antiviral programs. If you get a *virus remover*, it will examine the hard disk for signs of viruses known to that program.

*Information for this Micro-Tip came from "Know Thy Viral Enemy," by Ross M. Greenberg (BYTE, June 1989, pp. 275 - 280). §

VAX COMPUTER CLUSTER



Introduction to the VAX EDT Editor

By Lucia Young, Former VAX Operator

Reprinted from the August/September 1988 issue of Benchmarks, page 20.

EDT is an interactive text editor. It is the VAX/VMS default editor. It offers many features including the following:

- Three types of editing: keypad mode, line mode, and nokeypad mode. Both keypad mode and nokeypad modes are screen-oriented, which allows you to see several lines of text simultaneously and move the cursor throughout the text in any direction. Line mode enables you to edit text by using line numbers. You can use nokeypad mode commands to define keys.
- Online HELP.
- Journal facility. This enables you to recover your edit session in case of a system interruption.
- Startup command files. These enable you to personalize the characteristics of your editing sessions.

- Key definition facility. You can define keys to automate your keypad editing work.

Invoking EDT

To invoke the EDT editor, type the following at the DCL prompt (\$):

```
EDIT filename.ext
```

OR

```
EDIT/EDT filename.ext
```

Once you enter EDT, you can choose between three different modes. By default, EDT puts you into line mode. You will know that you are in line mode when you see the asterisk prompt (*). If you want to enter keypad mode, type the letter "C" (abbreviation for the CHANGE command) at the asterisk prompt and press RETURN. If you want to enter nokeypad mode, type SET NOKEYPAD command at the asterisk prompt, press RETURN, type the letter "C", and press RETURN. To switch back to line mode from keypad or nokeypad mode, press <CTRL><Z>.

Terminating EDT

If you want to save your edit session, switch back to line mode by pressing <CTRL><Z>, then type EXIT. If you do not want to save it, type QUIT at the line mode.

Journal Facility

If for any reason your edit session is aborted, a journal file is created. This file recorded every keystroke you entered for your edit session. This file will be in your directory as filename.JOU where filename is the file that you were editing. To recover the file, type the following at the DCL prompt (\$):

```
EDIT/RECOVER filename.ext
```

OR

```
EDIT/EDT/RECOVER filename.ext
```

Sartup command file

A startup command file allows you to set up the mode and key definitions at the start of your EDT session. This file can contain only line mode commands. If you want EDT to put you into keypad mode whenever you edit, put the following line in the command file:

```
SET MODE CHANGE
```

This command file should be named EDTIN.EDT. To invoke EDT with the command file, type the following at the DCL prompt (\$):

```
EDIT/COMMAND=EDTIN.EDT  
filename.ext
```

OR

```
EDIT/EDT/COMMAND=EDTIN.EDT  
filename.ext
```

You can also assign a symbol in your LOGIN.COM file:

```
ED == "EDIT/EDT/COMMAND=  
EDTIN.EDT"
```

The next time you log in you can simply type:

```
ED filename.ext
```

VAX CLUSTER USAGE STATISTICS

July Top Ten Programs: Frequency of Runs

Program	Description	Number of Runs	Percent of Total
1. LOGINOUT	User login	81843	18.4
2. SET	VMS Utility	66372	14.9
3. DELETE	VMS Utility	43248	9.7
4. DIRECTORY	VMS Utility	35557	8.0
5. User programs	Compiled Programs	24829	5.6
6. TYPE	VMS Utility	20106	4.5
7. EDT	Editor	19338	4.3
8. SHOW	VMS Utility	18219	4.1
9. NETSERVER	DECnet Server	15395	3.5
10. SEND	BITNET Message Utility	13296	3.0
Total		444782	

July Top Ten Programs: CPU Time Used

Program	Description	CPU Time	Percent of Total
1. User programs	Compiled Programs	41 13:37:55.61	78.5
2. DISKEEPER	Disk Defragmenter	1 09:48:49.84	2.7
3. EDT	Editor	0 23:43:50.50	1.9
4. NEWS	ANU News Utility	0 17:36:06.34	1.4
5. BACKUP	Disk Backups	0 15:40:28.54	1.2
6. PASCAL	PASCAL Compiler	0 15:07:23.02	1.2
7. BBS	Bulletin Board	0 13:18:01.76	1.0
8. LOGINOUT	User login	0 13:13:56.12	1.0
9. MAIL_SERVER	Remote Mail Server	0 11:42:32.08	0.9
10. MAIL	VMS Mail	0 08:59:49.39	0.7
Total		52 08:16:16.70	

Recovering Files Lost During an Edit Session

By Darrell Davis, Former VAX Operator

Reprinted from the November 1987 issue of Benchmarks, page 10.

Has this ever happened to you? You are editing the most important file of your life, you have modified hundreds of lines . . . and suddenly the VAX crashes!

Don't despair! The VAX editors have a wonderful feature known as "file recovery" to save the day. While you are editing or inserting text in a file the

VAX journaling facility keeps track of every keystroke you enter and records this information in a file called a journal file.

Unless you specify otherwise, the journal file is deleted every time you exit the editor. However, if for any reason your edit session is aborted, the journal file is not deleted. The journal file will be in your directory as *filename.JOU* (*filename* is the name of your file).

To recover a file edited with EDT, type:

EDIT/RECOVER filename.ext

or to recover a file edited with TPU, type:

EDIT/TPU/RECOVER filename.ext

or to recover a file edited with vi, type:

ex -r filename

Note that it is normal for the recovery to miss the last few edits of an aborted edit session. §

BEST OF THE BBS

Edited by Billy Barron,
VAX System Manager
(BITNET: BILLY@UNTVAX)



Welcome to the *Best of the BBS* column. This column highlights some of the more interesting and useful discussions on the UNT BBS. From those of you not familiar with the BBS, here is how to log into the UNT BBS.

- Sign-on by typing **CALL DEC** at the LAN prompt and then entering BBS as your Username at the VAX prompt.
- If you are already logged-on to the VAXcluster, type BBS at the \$ prompt.

The opinions expressed in this column do not necessarily reflect the views of Academic Computing Services or the Computing Center. Also, information in *Best of the BBS* has not been checked for accuracy.

HOST MODE ON IBM PCs

#12281

Subject : host mode

Maybe some out here can help me with this problem.....

Can it be possible to log on to one pc from other pc AND run a program such as dbase? If so how shall I go about it or could this work by using the host mode in proccom or telix?

#12290 Reply to #12281

Subject : RE: host mode

Yes and no. Many communications programs have the option of allowing a user to shell to dos. Usually SYSOPs are leery to allow users to do so, since they then have the ability to format disks and erase files.

As far as actually running programs, those which write directly to the screen buffer such as dbase, lotus and many many others, will cause the host system to lock up since the BIOS cannot capture these direct writes and send them out the proper port. Some packages, such as Carbon Copy plus WILL capture these writes and allow you to do just that. But they must be using the same package at both ends to work properly.

Carbon Copy plus even checks serial numbers at both ends to make sure you are using different copies of the program. So you must buy the package twice. A program here on the bbs called tandem does something similar to this, but I have found that it only works when the machines are directly connected and not via modem.

#12307 Reply to #12281 9-JUL-1989 12:08:10.27

Subject : RE: host mode, and other solutions

There actually several ways to do this. You obviously seem to have the equipment to achieve this dBase task. Have you heard of a package called Co-Session or PC Anywhere? Both are programs that allow you to call a "host" computer via modem, "log in" to that host system, and run various software on the "host" computer. Your screen (called "remote") shows exactly what is showing on the host screen. Very interesting and effective little packages. As far as which one is better, it just depends on what you want. Both support file transfers between the systems, both support full graphics implementation. Co-session is a little more rigorous as far as login security, and PC Anywhere allows you to use various computers to run the host IBM. As far as I know, both are available at Soft Warehouse.

.....
#12366 Reply to #12307 10-JUL-1989 13:12:27.91

Subject : RE: host mode, and other solutions

Let me see if I have this correct. With Pc anywhere: I can call one computer and work with a program such as dbase or WP50 and write to those programs.(how much memory do I need to do this?) Also does pc anywhere take place of telix or procomm and does it have a host mode that will allow for up and downloads?

.....
#12410 Reply to #12366 11-JUL-1989 09:09:16.71

Subject : RE: host mode, and other solutions

PC anywhere provides terminal to PC or PC to PC communications (via a modem). In either case, you can control a host PC from remote locations. If you are using a terminal (or terminal emulator) any graphics characters output on the host PC will be approximated on the terminal, for most terminals you will only be able to see 24 lines of the 25 line screen at a time, and you won't have any file transfer capability. If you are run-

ning it PC to PC, it can be as if the host PC was actually at your remote location (admittedly drawing the screen a bit more slowly) and you also have a mode which allows file transfer. I have been using it terminal to PC and have been pleased with its operation. The only thing I really miss is the file transfer capability.

I haven't looked to see how much memory it occupies (possibly around 100K), but I've been able to run most programs on my 640K PC (including WP50 loaded from a network).

.....
#12919 Reply to #12517 18-JUL-1989 08:27:09.68

Subject : RE: host mode, and other solutions

For what you describe (PC to PC, via modem, etc.), I would recommend PC Anywhere. It will allow you to run your native PC applications and will do PC to PC file transfer (according to the docs - I haven't had the chance to test that one). It takes up about 50K of memory, although I don't have the exact system requirements in front of me right now. he cost is \$69 from Soft Warehouse. There may be other products out there which will allow the same functionality, but from what I've seen of PC Anywhere, it looks like a pretty good program that works as advertised.

Dial-up Modem Tips

#12583 13-JUL-1989 21:15:54.09

Subject : assist

Hello, from a new BBS user. I have an IBMPC/AT clone, and use both PROCOMM and BITCOM. On occasion when logging onto UNTBBS, I get as far as "CONNECT 1200", and then nothing will react. No characters print, and no "#" appears. This throws me into a mild panic, as I fear that I've done something to upset

the system. I've logged on and off nine times tonight, and just now got thru, by using "auto redial" feature in PROCOMM.

Any advice for a REAL NOVICE HACKER about what's causing my dilemma?

.....
#12625 Reply to #12583 14-JUL-1989 17:56:26.09

Subject : RE: assist

Try holding down the Control and "Q" keys at the same time and see what happens.

Sytek Management Package

#12669 15-JUL-1989 04:25:34.50

Subject : legible line noise

in my last message, i received an interesting bit of "line noise" i didn't get the first line in the snapshot, but it was something like this:

SESSION 2 OPENED

the second line came a few seconds later

SESSION 2 CLOSED TO 5000,0

it seemed to me that someone attempted to open a session on the device associated with me. am i correct? is it a problem? just wanted to let you know...

.....
#12736 Reply to #12669 16-JUL-1989 18:00:44.27

Subject : RE: legible line noise

Due to the time of your message, I think you saw our NOS package at work.

This package automatically checks the parameters of Sytek (Localnet) boxes for the host systems and the dialup modems and gives a report to the technical support team. If you are on at 4-5 am in the morning, you may see that message. §

ADMINISTRATIVE COMPUTING



Financial Aid Has FAVORS!

By Claudia Lynch, Benchmarks Editor (BITNET: AS04@UNTVM1)

The latest financial aid information is now at the tip of your fingertips, if you have a touch-tone telephone. Since July 14, 1989, it has been possible to dial the UNT Financial Aid Office (565-2016) and make electronic inquiries to the financial aid database.

Financial Aid VOice Response System (FAVORS 2000), the official name of the program that makes all this possible, is a part of University College Applications Processing (UCAP), which was developed by General Telephone and Electric (GTE). Teleregistration is also a part of UCAP.

Although GTE developed UCAP, it was up to UNT to develop the host systems for each application (teleregistration and FAVORS 2000). In other words, we had to write programs that would integrate UCAP into the various existing applications data bases. The host system for teleregistration was written by James Varnell of GTE and Linda Wallace, a Programmer on the Student Data Systems Team. The host system for FAVORS 2000 was written by Nancy Fisher, Voice Response Applications Team Leader. Each host system was written primarily in COBOL.

To access FAVORS 2000, as mentioned above, it is necessary to call 565-2016 from a touch-tone phone (dial 9 if you are calling from on campus). The FAVORS 2000 voice computer will answer and prompt you to choose from the following options (Option 4 is not currently in effect).

- Option 1 -- To hear information about financial aid programs.
- Option 2 -- To request a financial aid form (FAF) applications packet.
- Option 3 -- To check your financial aid status.
- Option 5 -- Go check general requirements.

Only UNT students who have Financial Aids Forms on file may access Option 3. It is necessary to enter your Social Security Number, Birthdate you reported to the Registrars Office, and Semester Code, to get information from Option 3.

If you are connected to FAVORS and need assistance, you can press 0 to get a Financial Aid clerk. FAVORS is available from 7 a.m. to 7 p.m., Monday through Friday. §

Staff Changes

Over the past few months there have been a number of changes in the Administrative Computing staff. The Student Records Data Systems team lost Benny Pena when he resigned to take a position as a contract programmer in Dallas. Paul Koldjeski, formerly of Production Control, stepped in to fill a vacant programmer position with the team. Cathy Hardy transferred from the Student Records Data Systems team to the Data Base/Central Programming Support team. Manas Chakraborty, a former teaching fellow with the BCIS Department, accepted the other vacant programmer position with Student Records Data Systems. Finally, Will Robertson, of the Payroll/Personnel Data Systems team, resigned to accept a position with American Airlines.

There is currently an opening for a Programmer II on the Student Records Data Systems team. If you are interested in this position, please contact the Personnel Office (Marq 150). §

COMPUTING TECHNICAL SERVICES

Mainframe Performance Statistics

NAS/8083 Dual Processor Performance Statistics for July

CPU	SYSTEM	Scheduled Operating Hours	Planned Maintenance Hours	Planned Production Hours	Unplanned Maintenance Hours	Production Hours Achieved	System Uptime
ACAD	VM/SP5	744	0.00	744.00	4.64	739.36	99.4%
ACAD	MUSIC/SP	744	32.72	711.28	5.64	705.64	99.2%
ACAD	MVS/JES2	744	0.00	744.00	9.20	734.80	98.8%
ACAD	COMPLETA	744	0.00	744.00	15.87	728.13	97.9%
ADMN	MVS/JES2	744	0.27	743.73	0.15	743.58	99.9%
ADMN	COMPLETA	327	0.00	327.00	6.98	320.02	97.9%
ADMN	ADABASA	744	28.92	715.08	1.01	714.07	99.8%

System Uptime = (Production Hours Achieved) / (Planned Production Hours)

Production Hours Achieved = (Planned Production) - (Unplanned Maintenance)

Scheduled Operating Hours = (Planned Maintenance) + (Planned Production)

MUSIC/SP Planned Maintenance Hours include 18.10 hours for system backup and 14.62 hours for VM/SP3 system backup.

ADABASA'S Planned Maintenance Hours include 28.65 hours for system backup.

The ACAD CPU achieved 100% uptime; the NAS/7360 DASD achieved 100% uptime; the NAS/7380 DASD achieved 100% uptime. The ADMN CPU achieved 100% uptime; the NAS/7360 DASD achieved 100% uptime; the NAS/7380 DASD achieved 100% uptime.

Lost productivity is calculated as the greatest amount of elapsed time that any

one of the production systems was unavailable for scheduled operation. Lost

productivity hours were contributed to by the key causes appearing in the table below.

ACAD CPU:

Miscellaneous

1. Systems development.	8.41 HOURS
2. Emergency shutdown of ACAD system due to loss of air conditioning	4.57
3. COMPLETA system maintenance	2.84
TOTAL	15.82 HOURS
GRAND TOTAL	15.82 HOURS

ADMN CPU:

Miscellaneous

1. Keeping COMPLETA down to run FISCAL jobs.	3.77 HOURS
2. COMPLETA system failures.	1.50
3. Inadvertant shutdowns of COMPLETA.	1.38
4. Weekly DASD backup failure.	0.57
5. Systems development.	0.44
6. Stopped CPU to connect EMC SSD unit.	0.27
TOTAL	7.93 HOURS
GRAND TOTAL	7.93 HOURS

DISK BACKUP SCHEDULES

Administrative MVS/SP System

Backups of the system and certain administrative data packs consist of daily incremental dumps, weekly full pack dumps, and monthly full pack historical dumps. The packs backed up are:

SYSRES, SYSCAT, SYSLIB, SYSVOL, ADM001, ADM002, ADM003, ADM004, ADM006, ADM007, ADM008, ADM009, ADM00A, ADM00C, ADM801, ADM802, ADM803, ADM804, ADM810, ADM811, ADM812, ADM813, ADM814, ADM815, ADM816, ADM820, ADM821.

Other volumes are backed up on an as-needed basis.

Daily Backups

Daily backups are taken Monday through Friday around 7:00 p.m. (after COM-LETE is shut down) and on Saturday and Sunday if COM-LETE has been up that day. The backup tapes are retained for 8 days. This is sufficient to insure that all are kept through the next weekly backup.

Weekly Backups

Weekly backups are full pack dumps taken on Sunday morning of each week. These backup tapes are retained for 35 days. This results in 5 generations being available, which is sufficient to span monthly backups.

Monthly Backups

Monthly backups are full pack dumps taken on the first day of each month. These backup tapes are retained 185 days for systems volumes and 397 days for administrative volumes. The most recent monthly backup tape is stored in an

off-site vault and all others in the tape library until they expire.

Academic MVS/SP System

Backups consists of daily incremental dumps, weekly full volume dumps, and monthly full volume historical dumps. The volumes backed up are:

SYSRES, SYSCAT, SYSLIB, SYSDLB, SYS15C, SYSTSA, SPOOL1, ACAD00, ACAD01, ACAD02, and ACAD03.

Daily Backups

Daily backups are incremental dumps. These dumps are taken Monday through Sunday during the early hours of the morning. These backup tapes are retained for 7 days. This is sufficient to insure that all are kept through the next weekly backup.

Weekly Backups

Weekly backups are full pack dumps taken on Sunday of each week. These backup tapes are retained for 35 days. This results in 5 generations being available, which is sufficient to span monthly backups.

Monthly Backups

Monthly backups are full volume dumps taken on the first day of each month. These backup tapes are retained for 185 days. The most recent monthly backup tape is stored in an off-site vault and all others in the tape library until they expire.

MUSIC/SP System

Daily backups

MUSIC Daily backups include an incremental Save Library backup, UDS (User Data Set) backup, and an ID Code dump. MUSIC daily back-

ups are performed 6 days per week, Wednesday through Monday, starting at 4:00 a.m., for about 30 minutes.

Weekly backups

MUSIC weekly backups include a full Save Library backup, UDS backup, and an ID Code dump. Weekly backups are performed at around 3:00 a.m. Tuesday mornings (for about 2 hours). Six sets of tapes are maintained.

Permanent semester Save Library backup

Once a semester, a permanent backup is taken. This includes a full Save Library backup, UDS backup, and an ID Code dump. These backup tapes will be maintained on a continuing basis at the discretion of the Director of Academic Computing Services.

VM/SP System

VM Weekly

A weekly backup is taken of volumes VM3RES, VMCMS1, VMCMS2, MUSICX, MUSICY, and MUSIC1. Six sets of tapes are maintained. VM weekly backup is performed early on Wednesday mornings.

CMS mini-disks

The CMS backup consists of dumps of all mini-disks for all users. Both a weekly (complete) and daily (incremental) backup are performed by the BACKUP/CMS system. The weekly backup is performed on Wednesdays starting at 3:00 a.m.; the daily backup is performed every other day of the week, at an operator-scheduled time early in the morning.

Weekly backup tapes are retained for 6 weeks; daily backup tapes are retained for 2 weeks. The backup tapes are managed by the TAPELIB/CMS system. §

ACADemic (NAS) Program Hit Parade

July Top Ten Programs : Frequency Of Runs

Program	Description	Number of Runs	Percent of Total
1. PGM=*.DD	Compiled Program	10921	19.5
2. IEWL	Linkage Editor	10822	19.3
3. IEBGENER	IBM Utility	7565	13.5
4. IKFCBL00	VS COBOL Compiler	6345	11.3
5. SASLPA	SAS	5401	9.6
6. IEV90	Assembler H	4465	8.0
7. PTPCH	Dataset Lister	2039	3.6
8. SPSSX	SPSS ^X	1793	3.2
9. SCRIPT	Waterloo/SCRIPT	1399	2.5
10. CASMA001	Sort Utility	1376	2.5

July Top Ten Programs: CPU Seconds Used

Program	Description	CPU Seconds	Percent of Total
1. SASLPA	SAS	295506	83.8
2. PGM=*.DD	Compiled Program	14928	4.2
3. SPSSX	SPSS ^X	7248	2.1
4. IKFCBL00	VS COBOL Compiler	6284	1.8
5. SCRIPT	Waterloo/SCRIPT	5720	1.6
6. FATS	Tape Verification Program	3803	1.1
7. IEV90	Assembler H	3295	0.9
8. ISTINM01	VTAM Utility	1964	0.6
9. PTPCH	Dataset Lister	1880	0.5
10. ADARUN	ADABAS Utility Module	1776	0.5

The programs listed in this section were used the most frequently on the NAS CPU during the month of July, 1989. Please Note that ACAD is the official designation of the part of the NAS/8083 CPU that is dedicated to faculty and student use. The portion of the computer reserved for University administrative purposes is termed ADMN.§



University of North Texas Computing Center

Richard A. Harris, Associate Vice President for Computing
 Steve Minnis, Director of Computing Technical Services
 Dave Molta, Director of Academic Computing
 Coy Hoggard, Director of Administrative Computing
 Claudia Lynch, *Benchmarks* Editor
 Philip Baczewski, *Benchmarks* Associate Editor

Computing Center Short Course Registration Form

Please complete this form and return it AS SOON AS POSSIBLE if you wish to attend any of the short courses listed below. You may also register over the phone by calling (817) 565-2324.

NAME: _____ PHONE: _____

DEPT: _____ CLASSIFICATION: _____

MAILING ADDRESS: _____

I wish to attend:

• **Introduction to JCL (ISB 123):**

____ Monday, September 18: 3-5 p.m.

____ Tuesday, November 14: 9-11 a.m.

• **Introduction to SPSS-X (ISB 110):**

____ Monday, September 20: 9 - 11 a.m.

____ Tuesday, November 14: 3 - 5 p.m.

• **Introduction to ARPA Internet and
THENET (ISB 123):**

____ Wednesday, September 27: 3-5 p.m.

• **Introduction to Micros (ISB 110)**

____ Thursday, September 14: 1-3 p.m.

____ Wednesday, November 8: 9-11 a.m.

• **Using Microcomputers in a Networked
Environment (ISB 110)**

____ Monday, September 18: 1-3 p.m.

____ Wednesday, November 15: 3-5 p.m.

• **Introduction to Wordprocessing on
the PC (ISB 110)**

____ Friday, September 22: 3-5 p.m.

____ Friday, November 17: 1-3 p.m.

• **Introduction to PCWS (ISB 123):**

____ Thursday, September 21: 3-4 p.m.

____ Tuesday, November 14: 3-4 p.m.

• **Introduction to SAS (ISB 110):**

____ Tuesday, September 19: 3-5 p.m.

____ Wednesday, November 15: 9-11 a.m.

• **Introduction to CMS (ISB 123):**

____ Friday, September 22: 9-11 a.m.

____ Thursday, November 16: 3-5 p.m.

• **Introduction to BITNET (ISB 123)**

____ Wednesday, September 27: 3-5 p.m.

____ Monday, November 20: 3-5 p.m.

• **Introduction to MS/DOS (ISB 110)**

____ Thursday, September 14: 3-5 p.m.

____ Wednesday, November 8: 1-3 p.m.

• **Introduction to Wordprocessing
on the MAC (ISB 110)**

____ Friday, September 22: 1-3 p.m.

____ Friday, November 17: 3-5 p.m.

• **Introduction to PROCOMM (ISB
123):**

____ Thursday, September 21: 2-3 p.m.

____ Tuesday, November 14: 2-3 p.m.

I would like to see more classes offered: ____ on weekends; ____ at night.

The classes I am interested in are: _____



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Mailing Address: _____

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